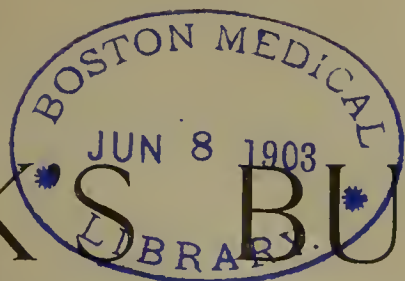


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Professor of Clinical Medicine and Pathology in the New York Post-Graduate Medical School and Hospital.

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will notice the immense difference between the appearance of MERCK'S BULLETIN as it is and as it was. The present number, for instance, contains *fully eight times* the amount of reading-matter which an average number of the previous volume would contain. Commensurate and simultaneous with this physical enlargement of our journal is the enlargement of its mental stature,—that is, of its scientific and practical scope in regard to Therapeutics and all branches of knowledge related thereto; the augmented variety of the form and manner wherein its subject-matters are presented; and the increased pains taken by Editor and Publishers to secure *only the best* obtainable material wherewith to fill that enlarged space and those varied chapters.

Not commensurate, however, with this augmentation of quantity and quality of matter offered, is the increase in the PRICE OF SUBSCRIPTION. This has been raised from One Dollar per year to Two Dollars; while the Subscriber now gets a paper which may be worth to him many-fold its former value.

THE PUBLISHERS.

OUR PROGRAM.

The main object of MERCK'S BULLETIN in its new and enlarged form will be to advance the sciences of Pharmaceutical Chemistry, Materia Medica and Practical Therapeutics by every known method of study and investigation. A strong effort will be made, and no expense spared, to keep this journal fully abreast with the times, by presenting in full the new remedies, as rapidly as they are announced,—giving their chemistry and physiological actions, together with practical indications for their therapeutic administration,—and at the same time keeping fully in mind the rapid advances which have been made in recent years regarding the chemistry of the body and the physiological laws that govern the normal workings of the human economy. Appreciating the mighty influences that these principles are at the present time exerting upon the intelligent administration of therapeutic agents,—especial attention will be given in these columns, in the future, as in the past, to a concise and accurate description of the chemistry of New Discoveries, and likewise to the furtherance of the investigation of old and tried therapeutic remedies;

—hoping by this plan to place the chemical side of the *Materia Medica* and Therapeutics in the hands of the profession in a thoroughly practical form; so that this department of medical science will not have to be regarded in the light of a beautiful but useless theory, or as an empiricism, but can on the contrary be fully sustained as an exact science, of practical value to the clinician, and to the benefit of humanity at large.

Particular attention will be devoted to the physiological action of the old and the new remedies both, and every effort will be made to present the therapeutic advances in medicine in a thoroughly practical light. For the Publishers and Editor fully appreciate the fact, that—no matter how beautifully the theories may have been drawn, unless the underlying principles of these theories can be made of absolute and practical value at the bedside in the treatment of disease and found to hold true in the vast majority of instances where they appear to be applicable—such theories and the remedies based thereon will be discarded or altogether ignored and classed as worthless by the truly scientific and accurate practitioner.

With these fundamental principles in mind, this journal has been divided into sections.

First,—for the presentation of original articles which deal with pharmaceutical chemistry, the physiological actions and therapeutic uses of both new and old remedies, or those substances which have been much used as well as those which have not been extensively administered.

The *second* section will be devoted to clinical papers in which the practical and chemical side of therapeutics will be concisely discussed.

The *third* department will be for the announcement of all new remedies and for adding new information to the chemistry, physiological actions and therapeutic utility of the substances already in the hands of the profession.

The *fourth* section will be devoted to the publication of practical hints in the advanced methods of therapy, pharmacy, and the allied sciences.

The *fifth* section will be devoted to medical dietetics,—so far a sadly neglected field.

The *sixth* department is intended to bring before the profession the formulas which have been found of practical value by the profession throughout the world.

The *seventh* section will contain monographs upon interesting drugs which are attracting the special attention of the medical profession.

The *eighth* department will contain miscellaneous clippings which are in some way of medical interest and value.

Other sections will be added in accord with the demands made upon the journal and the support given to it.

By this method of arrangement we hope to lay before the profession a large amount of valuable material which will be thoroughly scientific and at the same time of practical service to the general practitioner.

In this endeavor we hope to have the hearty support of all who have the advancement of medical science at heart, and *the columns of MERCK'S BULLETIN will always be open for the reception and publication of scientific articles bearing upon any one of the sections here enumerated or hereafter to be created.*

THE EDITOR.

MEDICAL REPORTS

TO "MERCK'S BULLETIN."

SOME NEW OBSERVATIONS ON THE PHYSIOLOGICAL ACTION OF THE MERCURIALS AND IODIDES, AS ELUCIDATED BY RECENT CHEMICAL, PHYSIOLOGICAL, PATHOLOGICAL AND CLINICAL INVESTIGATIONS.

By WILLIAM HENRY PORTER, M.D.

Professor of Clinical Medicine and Pathology in the New York Post-Graduate Medical School and Hospital.

In reviewing the literature upon Mercury, Iodine and their compounds, and their actions upon the system in syphilis and in other pathological affections where these drugs are admissible, we fail to find a clear and rational physiological explanation for the good effects that are known to follow, when these substances are introduced into the system as medicinal agents.

Modern research, however, has thrown much new light upon the chemistry and the physiological phenomena of the human system, which has helped to elucidate to a very large extent the common laws that govern the actions of the inorganic compounds in their transit through the body. It has also explained more fully than ever before, the method of their elimination from the system by the excretory organs.

By fully comprehending these physiological and chemical laws in connection with the normal state, and then by a thorough application of the same laws and principles to the Mercurials and Iodides and other inorganic compounds where they are administered in connection with pathological problems, we are placed in possession of the knowledge which will explain with a wonderful degree of accuracy the precise action of these medicinal substances when they are introduced into the system as therapeutic agents. Much that heretofore has been mysterious and problematic becomes at once fixed and certain.

The purpose of this paper, therefore, will be, first, to review briefly some of these newly-

explained normal phenomena as observed in connection with the inorganic salts that are introduced daily into the body with the food-stuffs;—

Then, by the application of these same chemical laws and physiological principles, to elucidate the physiological actions of the Mercurials and Iodides, and thus to explain their therapeutic utility while passing through the system upon a scientific chemical and physiological basis.

Before proceeding further in this discussion it may be well to state that the views here recorded are not the results of pure theoretical speculation. But, that they are deduced from a close and careful study of the physiological and pathological conditions taken together with the therapeutic results obtained under varied circumstances, and by a close study of the urinary changes as observed in hundreds of clinical cases while the system was under the influence of the Mercurials or Iodides or the two in combination.

First, however, it is necessary to consider briefly the changes which normally occur in connection with certain inorganic compounds as they pass through the system, and which were presented in full in my paper upon the Proximate Principles recently read before the New York Academy of Medicine, Section on Pædiatrics.

With regard to water it is quite generally admitted that it passes through the system unchanged, and that its action is chiefly mechanical as compared with chemical phenomena.

In reference to the phosphates and carbonates, their action has not generally been so concisely stated. But it is now well known that the phosphates and other inorganic compounds, like water, pass into the system in a given form and are carried along through the body without undergoing any chemical change,

and that they are finally eliminated from the system absolutely untransformed in their chemical composition. After they have been expelled from the blood, however, and been discharged into the lumen of the uriniferous tubules, some of these inorganic compounds are decomposed and changed into different chemical substances while still contained within the urinary passages. This transformation is brought about in the lumen of the uriniferous tubules, which, so far as the physiological functions of the body are concerned, are outside of the system. The saline compounds leave the blood channels at the Malpighian tufts and flow along down the tubules with the water which has escaped at the same time and place. The uric acid, on the other hand, is produced by the vital action of the epithelial cells lining the tubules below the tufts, and over which these inorganic compounds are continuously being carried. This powerful organic acid, which is constantly being eliminated by these epithelial cells that line the convoluted tubules and the ascending arm of Henle's loop, is necessarily brought into direct contact with the saline compounds in the constantly descending stream of water, coming from the Malpighian tufts above. As a result, chemical changes are continually produced, by the uric-acid molecules acting upon the neutral salts, with the formation of acid urates of the metals contained in the saline compounds and with the formation of acid salts in the place of the neutral or alkaline compounds introduced with the food-stuffs. So that when the urine is examined and its composition compared with that of the food-stuffs, entirely different saline compounds are found in the two instances. On account of these differences it has been argued that these saline compounds were transformed within the system as the result of peculiar and vital properties possessed by the living protoplasm of the animal organism. This line of argument was made necessary by the well-known chemical laws which prove conclusively that the action of a strong acid is necessary to decompose and

transform these fixed saline compounds of inorganic composition. Between the stomach and the bladder, however, there is no acid compound, but on the contrary all the tissues and fluids of the body have a decidedly alkaline reaction, and to change from this positive alkalinity to an acid state means destruction of vital force and death. Admitting, however, for a moment that the assumption is a correct one—that the vital action of the body is capable of decomposing these saline compounds and transforming alkaline into acid substances while within the system—we should have as a natural sequence the undesirable results just mentioned: alkalinity giving place to acidity, life to death; this, however, does not occur and so in itself proves the error of the first theory. Therefore, as a common law, we may assume that all the inorganic compounds pass in and out of the body unchanged, and when they appear to be transformed the chemical decomposition in all probability has been effected after these compounds have left the blood-stream and tissues of the system proper.

Studying the subject a little more closely, we find that in the laboratory and theoretically, two hydrogen atoms of the uric acid can be displaced and made to change places with the metals sodium, potassium, magnesium, calcium, lithium, etc.; with the formation of the very soluble normal urates, and the change of the normal phosphate of the above-enumerated metals and the formation of two acid salts,—a di-hydrogen and a mono-hydrogen salt of the metal contained in the substance acted upon.

Owing, however, to the slow formation and to the diluteness of the solutions, the combination of the uric acid with the phosphate compound in the uriniferous tubules of the kidneys results in the displacement of only one hydrogen atom of the uric acid and of one or two metallic atoms in the phosphate salt. Consequently only an acid urate is found in the urinary channels; but, by taking one or two molecules of the uric acid and acting upon the metallic compound and thus displacing

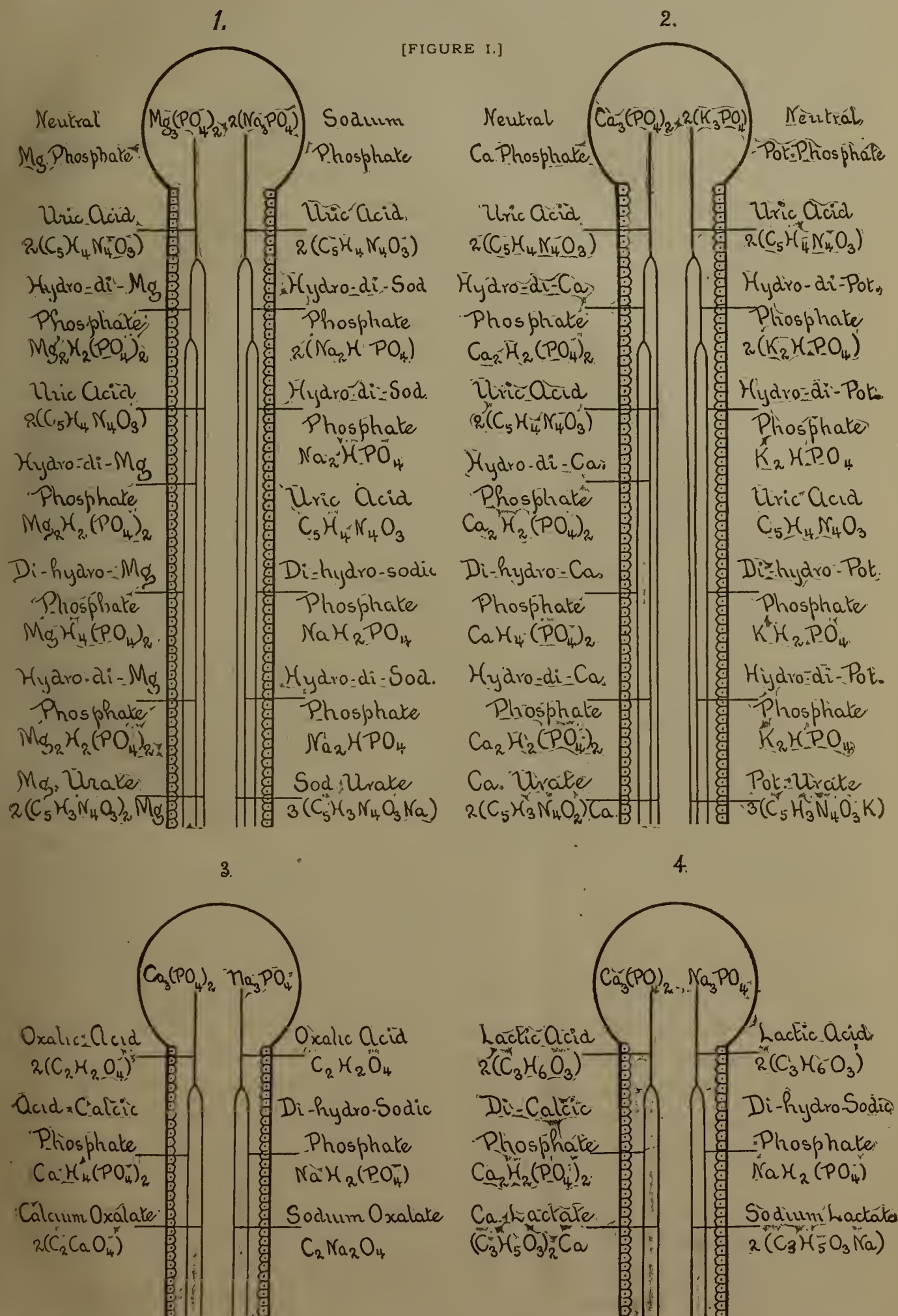


Fig. I represents four Malpighian capsules and their respective uriniferous tubules.—1 and 2 illustrate the normal chemical changes which occur in the tubules; 3 and 4 illustrate chemical reactions occurring in the tubules in connection with *oxaluria* and *rheumatism*.

one or two metal elements, the two acid forms of the phosphate compound are produced.

The precise place at which these reactions are effected is very perfectly shown by Fig. I,

drawn in accord with my views by one of my students, Mr. James P. Haney. In this schematic drawing, Nos. 1, 2, 3 and 4 each represent a uriniferous tubule with its Malpighian capsule.

Within this Malpighian capsule is situated the capillary plexus of blood vessels, from which the inorganic and saline compounds are constantly escaping with the water which is being poured into this, the innermost extremity of the tubule. In this drawing the formula of the saline compound represents the constant discharge of the inorganic substances from the blood vessels to the cavity of the capsule. From this formula in the capsule, a straight line is drawn running down within the lumen of the tubule, and indicates the course and composition of the stream of water. This, as it descends in the tube, is joined by a line indicating a stream of uric acid excreted by the epithelial cells lining the uriniferous tubules. As a result of the union of the two streams a chemical reaction is produced, with the formation of an acid urate and a mono-hydrogen compound. This mono-hydrogen compound is again attacked by another molecule of uric acid, with the formation of another acid urate molecule and a di-hydrogen compound of whatever metallic phosphate has been acted upon.

It is, therefore, at this point or in the lumen of the uriniferous tubules, that all these chemical changes are effected. This part of the economy, however, is in the strict sense of the word on the outside of the body. For the lumina of the urethra, bladder, ureters, and the uriniferous tubules are on the outside of the body, these channels being as it were a tubular infolding of the skin.

When these saline compounds and the uric acid are abundant in quantity, sufficient time does not elapse for all these changes to be effected before the urine can be expelled from the urinary channels. In this case, these chemical changes may continue progressively, developing for days and in some instances for weeks after the urine has been voided. A

careful study of which is absolutely necessary if we are to thoroughly understand these physiological and nutritive problems, and from them elucidate our drug actions.

If we take the normal sodium phosphate for illustration, we find that there are formed in the urine while it is descending through the lumen of the uriniferous tubules—by the chemical union of the uric acid with the salt and the decomposition of the two—an acid urate of soda and two forms of the acid phosphate, the hydrogen-di-sodium phosphate and the di-hydrogen sodium phosphate. Thus $2(C_5H_4N_4O_3) + 2(Na_3PO_4) = 2(C_5H_3N_4O_3Na) + 2(Na_2HPO_4)$; or, by taking a larger number of uric-acid molecules, the second form of phosphate can be directly produced. $4(C_5H_4N_4O_3) + 2(Na_3PO_4) = 4(C_5H_3N_4O_3Na) + 2(NaH_2PO_4)$, or $2(C_5H_4N_4O_3) + Na_3PO_4 = 2(C_5H_3N_4O_3Na) + NaH_2PO_4$. But, what most frequently happens is this: the hydrogen-di-sodium phosphate, having first been produced, is again acted-upon by more uric acid, with a secondary formation of another molecule of the acid urate of soda and the development of the di-hydrogen-sodium phosphate, thus, $C_5H_4N_4O_3 + Na_2HPO_4 = C_5H_3N_4O_3Na + NaH_2PO_4$. Similar changes are constantly produced by the uric acid acting upon the potassium, calcium, and magnesium or lithium phosphates. Most of these reactions are indicated in Fig. I,—1 and 2,—and are given in full, with all the changes occurring in the urine, in Table I (opposite).

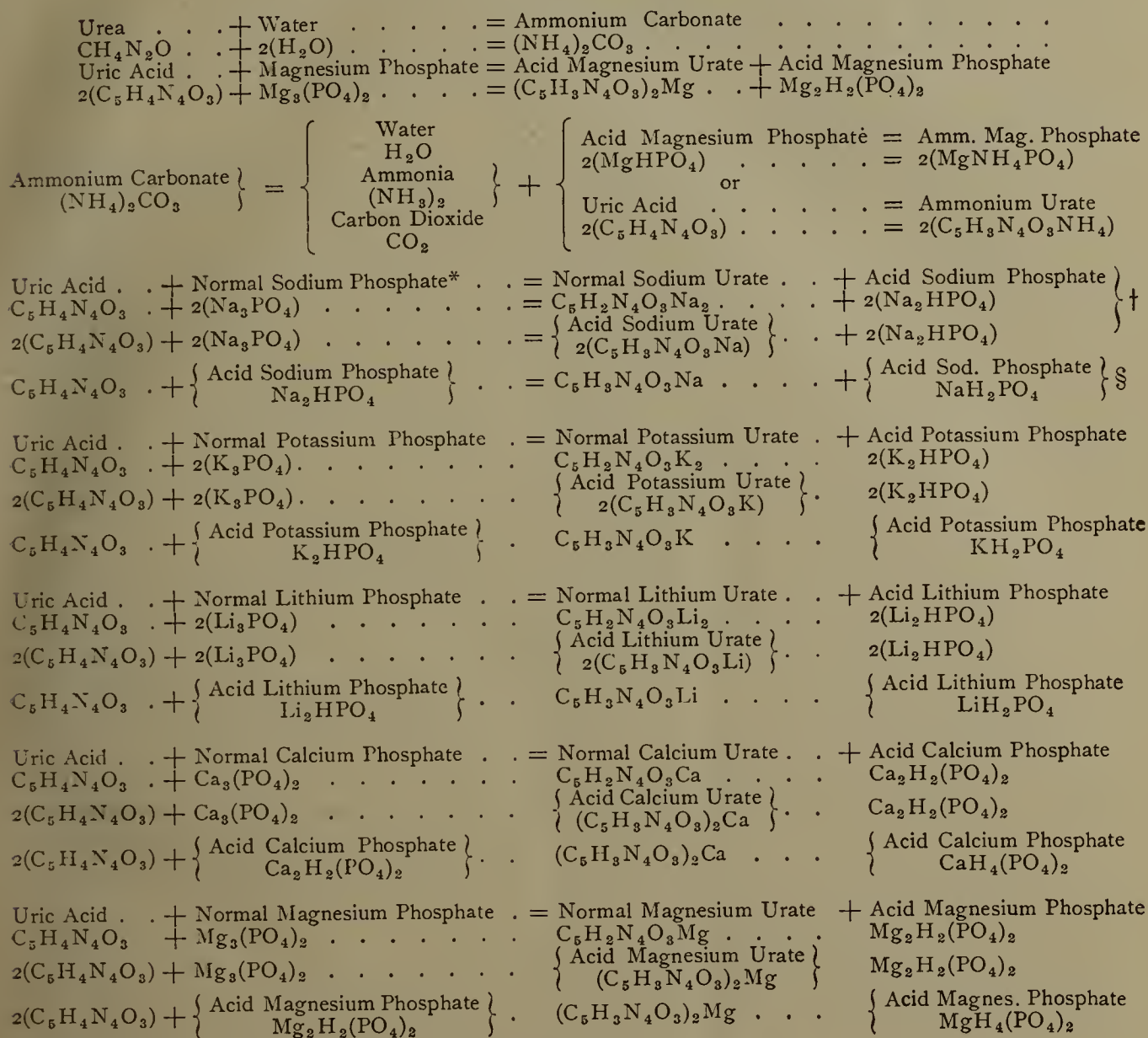
If we carry this line of investigation a little further and study one or two of our common pathological problems, we find that this same law holds true in relation to the chemical reactions which occur in connection with them.

In the oxaluric condition, oxalic acid is developed as the result of an incomplete proteid metabolism in which we have oxalic-acid-forming elements produced as by-products of this proteid katabolism, and these are finally excreted from the blood by the action of the renal epithelial cells, as a completely formed oxalic acid. This acid, like uric acid, reacts upon the neutral salts of sodium and calcium, forming

[TABLE I.]

CHANGES IN NORMAL AND SUPER-ACID URINE COMMONLY CALLED
FERMENTATION OF URINE.

ARRANGED BY WILLIAM HENRY PORTER, M.D.



* Or Neutral Sodium Phosphate—a neutral salt with an alkaline reaction.

† Or Hydro-di-sodium Phosphate—an acid salt with neutral reaction.

§ Or Di-hydrogen-sodium Phosphate—an acid salt with acid reaction.

The above applies also to the K, Li, Ca, and Mg Phosphates.

oxalate of sodium and calcium and an acid phosphate of sodium and calcium in a manner precisely similar to that described for uric acid, only substituting the different acid. Thus $\text{C}_2\text{H}_2\text{O}_4 + \text{Na}_3\text{PO}_4 = \text{NaH}_2\text{PO}_4 + \text{C}_2\text{Na}_2\text{O}_4$; or by taking $2(\text{C}_2\text{H}_2\text{O}_4) + \text{Ca}_3(\text{PO}_4)_2 = \text{CaH}_4(\text{PO}_4)_2 + 2(\text{C}_2\text{CaO}_4)$; see Fig. I, 3.

In the rheumatic affection we have as in the oxaluric condition an incomplete proteid metabolism, but here the by-products developed as katabolins are in the form of antecedents to lactic acid. In rheumatism the renal epithelial cells pick up these antecedent by-products to lactic acid from the blood and convert

them into the completely formed lactic acid, which is then discharged by the action of the epithelium into the lumen of the renal tubules. At this point, as illustrated in Fig. I, No. 4, the following reactions are brought about: $2(\text{C}_3\text{H}_5\text{O}_3) + \text{Na}_3\text{PO}_4 = \text{NaH}_2\text{PO}_4 + 2(\text{C}_3\text{H}_5\text{O}_3\text{Na})$ and $2(\text{C}_3\text{H}_5\text{O}_3) + \text{Ca}_3(\text{PO}_4)_2 = \text{Ca}_2\text{H}_2(\text{PO}_4)_2 + (\text{C}_3\text{H}_5\text{O}_3)_2\text{Ca}$; or $4(\text{C}_3\text{H}_5\text{O}_3) + \text{Ca}_3(\text{PO}_4)_2 = \text{CaH}_4(\text{PO}_4)_2 + 2[(\text{C}_3\text{H}_5\text{O}_3)_2\text{Ca}]$.

Both by these normal and pathological conditions, we have the law pretty conclusively established, that the inorganic compounds are not decomposed within the system, and also as a rule, the fact is established, that the organic

acids are formed out of the normal or abnormal proteid metabolism by the action of the protoplasm of the renal epithelial cells. There are, however, two exceptions to this normal law, and they are found in connection with the pathological conditions known as gout and rheumatism.

In gout the by-products developed out of the incomplete transformation of the proteid bodies, and which ultimately go to form uric acid in the kidneys, are, by an abnormal condition of the protoplasmic elements of the cartilages, or, in various protoplasmic structures throughout the body, converted into uric acid such as ordinarily occurs in the kidneys. But the uric acid, so soon as it is formed in these abnormal situations, is united with a sodium compound, presumably with the Na_3PO_4 , which results in the development of an acid urate of soda and the production of a hydrogen-di-sodium phosphate in place of the normal sodium phosphate, viz.: $\text{C}_5\text{H}_4\text{N}_4\text{O}_3 + \text{Na}_3\text{PO}_4 = \text{C}_5\text{H}_3\text{N}_4\text{O}_3\text{Na} + \text{Na}_2\text{HPO}_4$.

But in this condition we have formed at a local point a powerful organic acid, which is followed by a rapid chemical reaction and the development and deposition of an acid urate of soda in the tissues. Consequently we find that uric acid or the urates do not circulate in the blood, but rather tend to become deposited locally, and then and there to act as foreign bodies, and are treated by the system as extraneous and damaging elements. Nature at once rebels and attempts to rid the system of the presence of this foreign substance, by the development of another pathological process which we call inflammation or the "gouty attack." Failing to expel these urates from the tissue in which they have been deposited, the inflammatory process accomplishes the next best thing, and practically encapsulates these deposits, and they are thus shut out from general communication with the circulation and system at large.

In rheumatism we have similar deposits, but located in the ligamentous structures in and around the joints,—the pathological state

of the protoplasm develops at a local point lactic acid, which ordinarily is formed in the kidneys. The lactic acid now attacks the sodium and calcium phosphates, and the acid lactate of sodium or calcium is formed, viz.: $\text{C}_3\text{H}_6\text{O}_3 + \text{Na}_3\text{PO}_4 = \text{C}_3\text{H}_5\text{O}_3\text{Na} + \text{Na}_2\text{HPO}_4$ or $2(\text{C}_3\text{H}_6\text{O}_3) + \text{Ca}_3(\text{PO}_4)_2 = (\text{C}_3\text{H}_5\text{O}_3)_2\text{Ca} + \text{Ca}_2\text{H}_2(\text{PO}_4)_2$.

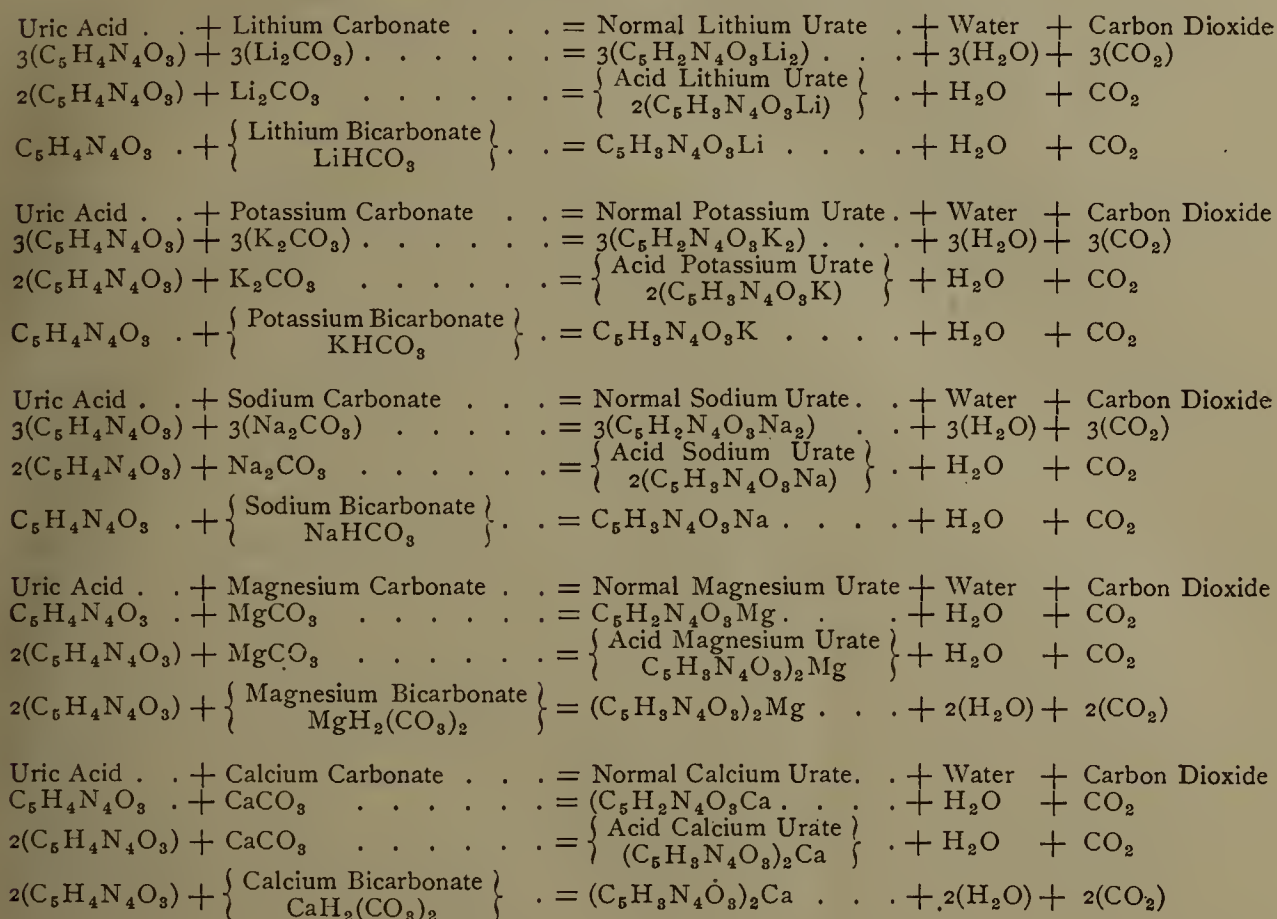
In this instance the lactate of sodium and calcium are both nearly insoluble compounds. So also is the calcium phosphate. All three are deposited in the tissues, which, as in gout, excites an inflammatory process; and we have the typical rheumatic attack. The inflammatory process, failing to remove these insoluble compounds, again in part encapsulates them, and we have as a sequence the chalky rheumatic deposits remaining.

If we turn our attention for a moment to the action of the carbonates and bicarbonates, we find that their chief chemical decompositions, like those of the phosphate compounds, are only effected after they have passed through the system and have been eliminated from the body and are passing through the uriniferous tubules. When these carbonates have reached the lumen of the renal tubules, like the phosphate compounds already described, they are acted-upon by the uric acid, with the formation of two molecules of the acid urate of sodium, one of carbon-di-oxide and one of water. When these carbonate compounds are given in sufficient quantities to cause all the uric acid to be decomposed and become converted into this more soluble acid urate of soda and still have an excess of the carbonates eliminated by the kidneys, they will together with an increased quantity of water taken into the system cause the organic and inorganic compounds to remain in solution, and the urine voided from the bladder will be clear and bland, or even alkaline in its reaction. This, however, has not decreased the quantity of by-products formed within the body nor the amount eliminated by the kidneys. It simply changes the composition of the excrementitious substances after they have left the

[TABLE II.]

CHANGES IN THE URINE AFTER GIVING THE CARBONATES AND BICARBONATES.

ARRANGED BY WILLIAM HENRY PORTER, M.D.



body. It does not change the abnormal proteid metabolism going on within the system, and the patient often grows progressively worse while the urine remains clear.

This is unquestionably the manner in which all the alkaline and mineral spring waters act when they are introduced into the animal economy. They carry a larger percentage of water and more of these saline substances through and out of the body into the renal tubules. When these alkaline and lithium compounds reach the urinary passages they are attacked by the uric acid, and soluble compounds replace insoluble substances. In so far as they relieve the mechanical irritation caused by the insoluble uric acid, they are valuable. But if we are deluded with the idea that they are changing body metabolism, they are damaging. All of these changes are perfectly illustrated in Table II (above).

Under all these varying circumstances it is clearly apparent that all the inorganic compounds that are introduced into the vascular channels pass through and out of the system

without undergoing any chemical transformation until they reach the lumen of the uriniferous tubules.

The only possible method left by which the inorganic compounds can be made of any service to the animal economy is to assume that when they are taken into the body in excess of the absolute demands of the physiological economy, they act as foreign bodies, and in this way become universally irritants to the system. To remove this foreign and irritating element the system is called upon to make abnormally great exertions, and in attempting this extra amount of work there is at once a demand on the part of the physiological economy for a larger nutritive supply to accomplish this excessive amount of work. If the foreign body can be eliminated from the system and a sufficient nutritive pabulum supplied and assimilated to sustain this increased demand upon the vital expenditures, the system is in this indirect manner generally improved in its nutritive vitality. All this, however, is accomplished without producing any chemical

decomposition of the inorganic compounds while they are passing through the system. If on the other hand the inorganic compounds are supplied more rapidly than the system can excrete them and still repair the damage wrought upon the protoplasmic vitality, consequent upon this increased work imposed upon the nutritive powers, a decided deterioration of the body must inevitably follow.

With these well-defined chemical and physiological laws regarding the inorganic compounds clearly in mind, we are in a better position to study the physiological actions and therapeutic utility of the Mercurials and Iodides in connection with all pathological problems and especially those of a syphilitic nature. The latter are taken as an illustrative example because the results are more easily appreciated.

Having by this line of chemical, physiological and clinical investigation established the common law that the inorganic substances are not chemically decomposed and transformed within the system into new compounds, but act if at all by their mechanical presence, the following questions are naturally suggested:

First,—How can we explain the well-known utility of the Mercurials and Iodides in syphilis and in connection with the many other pathological conditions in which they are used, if no chemical transformation is effected in them while they are passing through the system?

Second,—How can they be antidotes to syphilis?

Third,—How can they be agents by which cures are effected?

Fourth,—These questions naturally in turn suggest the query, what is syphilis?

Fifth,—Is the poison of syphilis a micro-organism, a ptomaine, a leucomaine, or an unknown quantity?

The last or the unknown element is the easiest of all these propositions to sustain; but, to plead ignorance all along the line is a confession of great weakness. While no one has as yet been able to indisputably define the

undeniable etiological factor in syphilis, that does not prove its non-existence.

Before we can intelligently discuss the action of the Mercurials and Iodides upon syphilis, we must go a step further and assume that we have a clear conception of the etiological factor in syphilis, also of the method of the action of the poison within the system; the same as the electrician claims to know what electricity is by knowing what can be done with his unknown quantity. This much gained, we can go on and clearly define the pathological lesions and explain the methods by which medicinal agents effect their removal.

With these data in hand, there is reason to believe that our deductions will have a sound and scientific foundation.

As before stated, the exact character of the poison is still unknown; this, however, is equally true of most infectious diseases even when called germ diseases. There seems to be little reason to doubt the presence of a micro-organism or bacillus being present in connection with syphilis, but there is considerable good ground for believing that it is not the causative factor.

Some years ago, when examining a large number of pathological lesions of syphilitic origin, the bacillus as described by LUSTGARTEN was easily demonstrated by following the methods of staining as laid down by him. But as no cultures were made from the bacilli found, and as no direct inoculations were made from a pure culture into the human subject, nothing was proved save the fact of these bacilli being present in almost every lesion examined. If the bacillus was the only and essential causative element to the disease, it would practically exclude the possibility of syphilis being transmitted from one generation *through* the second, to reappear in well-defined form in the third generation,—while such a probability is substantiated into a truth by an abundance of undeniable clinical evidence. Consequently, if we rule out the micro-organism theory of the disease, the notion that the mercury compounds act in syphilis through

their antiseptic properties must be abandoned. This theory also seems fallacious because it is impossible to introduce sufficient mercury, especially in the bi-chloride compound, into the system, to act in the manner commonly ascribed to mercurial solutions in general when used for these purposes.

Briefly stated, therefore, we can say that the proof is wanting to make syphilis a clean-cut and undeniable disease of germ origin. But this we do know, that some form of poison is introduced into the system, which excites a disease of this name and character. We further know that this toxic agent is slow in its action, but extremely tenacious in its hold upon the system when once introduced,—often remaining dormant in the body for weeks, months and years, to finally burst forth with intense vigor, and with a rapidly-destructive malignancy.

The poison is probably of nitrogenous organic composition and appears to be introduced first into the lymphatic spaces, where it progressively multiplies. At this point it acts as a foreign body and causes an irritation which attracts an increased amount of nutritive pabulum to the point of local infection. As a result, nature attempts to encapsulate the poison; but, the process being mild and non-inflammatory in character, nature fails in the attempt. The poison, however, progressively develops, but still remains too small in quantity to excite a truly inflammatory action; but a moderate amount of hypertrophic condensation of the tissues is developed immediately around the local foci, and we have the typical lesion known as the indurated chancre. The non-inflammatory character of the process fails to hermetically close the lymphatic spaces around the local lesion. Consequently a certain amount of the poison is constantly working its way into the deeper lymphatic channels, until finally the inguinal glands are reached. They resist the poison and become swollen and indurated, until at the end of several weeks the poison has fully made its way to the deeper lymphatics and finally gained access to the

blood-stream at the subclavian vein and thus to the system throughout. Now we have the whole body poisoned, and the symptoms common to all infectious diseases supervene. There are rigors, elevation of temperature, headache, a coated and furred tongue, constipation, scanty super-acid and high-colored urine. Finally an eruption is developed and we have the invasion stage with all its characteristic lesions and symptoms.

In this disease the poison reaches the pulmonary circuit first, and the chief action of the toxic agent as it circulates in the blood is to disturb or so alter the nutritive condition of the walls of the capillary blood-vessels, that they undergo a peculiar albuminoid or hyaline transformation. Or in other words the element, which excites the syphilis when it enters the blood, reacts upon the metabolic processes of the proteid bodies in such a manner, that instead of the normal we have abnormal or pathological results. These are characterized by the deposition of a proteid substance in the walls of the smaller arterioles and arterial capillaries, and finally throughout the whole arterial system.

As a result of this hyaline metamorphosis which I first stated was diagnostic of syphilis in my article upon Syphilis of the Lungs,*—since corroborated by Drs. WELCH AND COUNCILMAN and again noted by Dr. SATTERTHWAITE,†—some of the arterioles become thickened, with contracted lumen, and some thickened with an expanded lumen. In still other instances the vascular walls become abnormally thin, while the lumen is expanded.

This albuminoid or hyaline change gives to the vascular walls a peculiar hyaline appearance, which reacts characteristically to iodine and methyl green, and is found only in connection with syphilis.

In all of these three vascular conditions just described the physiological power on the part

* PORTER: "Syphilis as an Etiological Factor in Disease, especially in connection with Pulmonary Lesions or Syphilitic Phthisis.—*New York Medical Record*, March 12, 1887.

† SATTERTHWAITE: "Pulmonary Syphilis in the Adult;" *Boston Medical and Surgical Journal*, June 11 and 18, 1891.

of the terminal arteries and arterial capillaries to expand and contract, as they normally should, is lost; so that in some instances too much nutritive pabulum and at other times too little nutritive fluid reaches a given territory.

To completely understand the increase and decrease of nutrition, either local or general, a clear conception of the methods by which Nature governs this physiological problem is absolutely essential. Briefly stated, it is as follows: that all nutritive interchange between the blood and perivascular tissue is effected through the *arterial capillaries*; that when the blood has passed this point and entered the intermediate and venous capillaries, all the nutritive interchange is practically at an end; that normally a given volume of blood, having a certain quality when passing at a definite rate of speed through the arterial capillaries with a given tension, will allow of an interchange between the blood and tissue which is equivalent to the work accomplished, thus exactly repairing the loss resulting from the tissue or glandular work performed.

Consequently the peculiar hyaline changes in the vascular walls, as before described, and secondarily the inability of the latter to regulate the nutritive pabulum distributed to the lungs, liver, bones, tissues and glandular organs of the body, furnish a complete explanation for the development of all our syphilitic lesions,—an explanation that follows the general plan of, and is in keeping with, all the established physiological laws which govern the growth, development and maintenance of the whole animal economy.

The vascular channels of the lungs receive the greater bulk of all the blood during the twenty-four hours. They also receive the poison first and consequently are most likely to suffer early in the syphilitic infection. The liver, receiving the next largest amount of blood and being the organ which is chiefly concerned in transforming and eliminating the poison from the system, it also is damaged early in the disease and often to an extreme

degree. Then all the structures of the body suffer in varying degrees.

This change in the vascular walls of the lungs, together with the gummatous thickening of the vesicular walls, interferes to a marked extent with the perfect oxygenation of the blood. The same changes in the vascular walls of the liver positively interfere with the exchange of nutritive pabulum between the blood on the one side and the protoplasm of the hepatic cells on the other, and *vice versa*.

Consequently, oxidization and assimilation are both interfered with, the bile-producing power of the liver becomes defective, the bowels constipated, the tongue coated; and if the urine be carefully studied it shows at once the true state of the system. The normal quantity of urea falls and is replaced by products of lower oxidization, such as an excess of uric acid, or also, oxalic acid, lactic acid, glucose or even albumin.

With all this the system is disturbed by the irritating and toxic influences of the original poison, which Nature is constantly endeavoring to expel from the body. But the progressively deteriorating condition of the nutritive functions prevents Nature from accomplishing this self-imposed task, and the poison multiplies rather than diminishes; this is followed by the various surface and visceral manifestations so well known to the clinician and pathologist.

By these changes in the vascular walls we have a complete explanation for most if not all of the syphilitic lesions. If the vessels become thickened and dilated, too much nutritive pabulum is distributed to the part. If the quality of the nutritive pabulum is pretty nearly up to the normal standard, we have developed a white fibrillated connective tissue nearly equal to the normal type and a form that is hard to be liquefied and displaced. If the nutritive pabulum is poor in quality but still abundant, we have produced the low-grade or gelatinous-like tissue, commonly called gummatous tissue, and this form is quite easily removed. If one vessel is occluded and the

surrounding vessels are dilated, we have a concentric arrangement of the newly-formed tissue,—often with the development of a more or less distinct fibrous capsule, most marked in the lungs. The centre of these encapsulated zones is poorly nourished and often degenerates and dies, or liquefies, while the periphery will progressively develop new tissue and retain a fair degree of vitality. In this way we have formed the typical gummy tumors having varying degrees of consistency.

When this vascular change attacks the vessels of the osseous structures, the gummatous infiltration of the periosteum is produced, the bones are thickened and enlarged, or they become carious or necrotic. In fact, from this hyaline infiltration and loss of vascular function we can have almost any conceivable form of lesion produced; ranging from fairly well formed, to absolute death of tissue. But in all instances the newly-formed tissue has a lower nutritive vitality than the original structures, and in most instances it is of extremely low integrity. From this latter fact it is easily liquefied and dispersed, and when the original organs and tissues have not been seriously damaged they rapidly regain their functional activity when the gummatous material is removed.

That these changes are not confined to the so-called tertiary stages, but that they commence to be developed just so soon as the syphilitic poison reaches the vascular channels, has been established by an abundance of post-mortem proofs. For, in all cases of syphilis that die within the first and second years after contracting the initial lesion, the lungs and liver are found to be the seat of these vascular changes and are infiltrated with newly-formed gummatous tissue varying in the degrees of its density. The lungs and liver often contain gummy tumors varying in size from that of a millet seed up to that of a hen's egg. The membranes of the brain are thickened; in fact, the whole system is more or less impaired by these nutritive disturbances and infiltrations. Marked gummy tumors are found in the cere-

bral tissue. The diffuseness or the localization of the pathological lesions are governed by the amount and situation of the hyaline metamorphoses in the vessels.

Physical examination of the lungs in the invasion stage usually gives evidence of the progressive pulmonary infiltration.

By our line of investigation we have determined the true method of action and the utility to the system of the inorganic compounds in general. Also,—having elucidated the method of action of the syphilitic poison upon the system and demonstrated the physiological and pathological laws which govern the body nutrition both in health and disease; having further shown how the specific poison changes the vascular walls of the blood-vessels and alters the quantity, quality and distribution of the nutritive supply; and having thus explained the method by which the various lesions commonly known as syphilitic neoplasms are produced,—we are in a sound position to describe clearly and logically the action of the Mercurials and Iodides and their compounds.

As we do not know positively what the poison is, we cannot say that any remedy destroys or retards the action of the poison. Neither have we any clinical evidence that will warrant the assertion that any drug or chemical kills the virus. But we do possess evidence of the contrary action; for when our remedies are stopped and the patient uses alcohol to excess, renewed virulence is at once manifested. This further tends to prove that the etiological factor or factors can be held in abeyance until Nature can eliminate them in part or wholly from the system. Many of the cases permanently cured, in after years develop positive syphilitic manifestations without any proof of re-inoculation. Post-mortem evidence also clearly establishes the fact that syphilis is not cured,—by the abundance of syphilitic lesions, both active and dormant in character, which are found years after the reputed cures.

The specialist rarely follows his subjects to the post-mortem table in after years; because

the patient when attacked by the recurrent lesions consults the family physician or some specialist for the organ affected. The patient, supposing he has been cured, denies having had specific disease, and its presence often passes undetected until the post-mortem examination reveals the true character of the lesion.

Viewed in this light, the Mercurials become of therapeutic value for two reasons. *First*,—Here, as in all infectious diseases, there is an attempt on the part of all the glandular organs to rid the system of the original poison which is causing the disease. In this action the hepatic cells are chiefly concerned. As a result, the functional activity of the hepatic cells is greatly overtaxed, the biliary function is profoundly impaired, and the nutritive functions of the body in general greatly disturbed; which, together with the progressive changes going on in the vascular walls, still further interferes with the functional activity of the liver and glandular organs of the body.

Remembering the common law that none of the inorganic compounds are chemically decomposed within the system, the mercury is left to act simply as do all the other inorganic compounds: as a mechanical irritant. Mercury is as it were a foreign body to the animal organism, which by the chemical construction of the protoplasmic elements is chiefly eliminated by the hepatic cells,—some of the preparations causing in this way violent catharsis, thus carrying out of the system much of the old and deteriorated bile, and with the bile some of the original poison. This relieves the liver of some of the work that has been imposed upon it and enables the hepatic cells to utilize more nutritive pabulum and also to transform the nutritive elements more effectually. Other forms of mercury, and especially when applied by inunction, fumigation, or hypodermic injection, circulate throughout the system as a foreign element, which calls for more work on the part of the protoplasmic elements of every tissue and glandular structure, to free itself from this poisonous invasion.

Now, if the functional activity of the liver has been improved by a previously-administered cathartic agent, the hepatic cells will be empowered to accomplish more work. They can handle more nutritive material, produce more bile and eliminate the mercury together with some of the original poison. Nutrition throughout the system is improved, the poison reduced and diluted throughout the body. The newly-formed tissue is taken up, damage repaired, and the manifestations of the disease gradually dispersed. So long as the general nutrition is kept up to or above the normal standard and the specific poison removed more rapidly than it is regenerated, no evidence of the syphilitic infection can be detected during life or found post mortem.

That the poison is not completely destroyed and forever eliminated from the system, is proved beyond a question of doubt by hundreds and thousands of cases in which the poison has remained dormant for years in the body and then suddenly developed the most active lesions. Also by those cases in which it has passed through several generations without re-inoculation.

Taking this view of the action of the Mercurials, great care must be exercised not to use too large quantities; because, if more is taken into the body than can be eliminated and still maintain the increased nutritive vitality, damage to the system will be produced by the mercury as well as by the original virus. The syphilitic manifestations may subside, but the general nutrition will gradually fail and the patient may die from the over-treatment as well as from the syphilis. These unfavorable results from misdirected treatment have led some practitioners to the other extreme of little or no treatment, with the assertion that syphilis untreated does as well as with treatment. Post-mortem evidence proves the fallacy of such statements and shows that a well-directed treatment, with special attention to the diet and nutrition, yields the best results.

In treating all these cases, the urine should be carefully studied from week to week, to

make sure that the body nutrition is improving as well as the specific symptoms. When this is not done, it often happens that the nutrition fails unobserved until the urea gives place to uric acid, oxalic acid, glucose or even albumin and casts, and death follows unless a change in treatment is instituted.

Mercury, therefore, even in syphilis, is a poisonous agent and should always be used with great caution. Mercury should never be carried beyond the physiological limit. By closely watching the urine from day to day, we can always determine whether the nutrition of the body is gaining or losing ground. So long as the nutrition is improving, the quantity of mercury introduced into the system can be increased; but just so soon as abnormal or by-products of oxidization appear in the urine, the mercury must be decreased in quantity or altogether suspended. In all instances the smallest amount of the drug that will produce the desired result should be the inflexible rule.

The Iodides are not eliminated by the liver, but pass out of the body chiefly through the kidneys. They do not act so positively upon the functional activity of the liver; consequently they are not so generally effective in the early stages of disease. The Iodides, however, are very soluble salts and are capable of being rapidly diffused throughout the entire system. They are less poisonous in their effects than mercury, yet they retain the power to irritate the protoplasmic elements of the system by their presence to a major degree. This stimulates the system to take up an increased amount of nutritive pabulum, increases proteid oxidization, and rids the body of the iodides. In doing this,—together with the increase of nutrition,—a larger quantity of the pathological and gummy formations are at the same time liquefied and swept out of the system. While this is being accomplished, great care must be bestowed upon the diet, digestion and assimilation; and then nutrition will be maintained and improved; rapid and almost miraculous cures are thus often effected.

The Mercurials and Iodides, therefore, have no specific effect upon syphilis or any pathological lesion, but by their power to irritate the system they cause Nature to augment her inherent nutritive activity; the system is thus empowered to subdue or eliminate the original poison, disperse all symptoms, and remove the pathological neoplasms.

This line of argument suggests the possibility of absolutely curing syphilis, although, as before stated, the positive proof is wanting to sustain such an assumption.

With these actions of the Mercurials before us, it clearly indicates that the giving of the mercury and iodine compounds together must yield the best results. This is also sustained by clinical evidence when these general laws are closely followed.

In rheumatism and all pathological new formations, mercury, iodine, and all the inorganic substances act in precisely the same manner. The higher the nutritive vitality of the newly-formed tissue, the more slowly and imperfectly will it be dispersed. The lower its vitality, the more rapidly and completely will it be removed. In tubercular lesions the same law holds true; but the nutritive vitality is at such a low ebb that to add any more irritation to the system means almost certain death.

The chief deductions from this study are:

First,—That the inorganic compounds are not chemically decomposed in the system, but act by their mechanical presence.

Second,—That the action of the Mercurials and Iodides is governed by the same general chemical and physiological laws, and that they act in a similar manner.

Third,—That the urine should be carefully watched and frequently examined when using these inorganic compounds.

Fourth,—That diet, digestion and assimilation should be as accurately regulated as the dose of the drug if the best results are to be obtained from our therapeutic agents.

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TREATMENT OF CARCINOMA OF THE UTERUS NOT ACCESSIBLE TO THE KNIFE, BY THE RECENT METHOD WITH PYOKTANIN INJECTIONS.

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First, what cases of carcinoma uteri are to be considered not accessible to the knife? All cases in which the disease has advanced to such extent that seemingly all the malignant structure cannot be removed by excision of the uterus, or when the process has reached a stage where even an attempt to extirpate the organ cannot be entertained, must be classed as beyond the reach of the knife.

It should be remembered, however, that with attention to the hygienic surroundings, great cleanliness, curetting, the Paquelin cautery at the proper period, and the use of narcotics when the pain is severe, we can make life bearable for the brief period of its continuance; but more cannot be achieved.

If, then, one has found a remedy which seemingly answers far *better* than anything hitherto known to lessen the various discomforts caused by far-advanced uterine cancer, it is his duty in my estimation to make known his experience, though the number of cases on which it is tried may be limited. It is for this reason that I desire to call attention to the results which I have obtained by the employment of Pyoktanin (Blue) in the treatment of advanced uterine carcinoma. I began to use Pyoktanin some time ago for suppurative conditions met-with in gynecological practice. Encouraged by the satisfactory results obtained and the favorable reports of other practitioners, I determined to put it to trial in the condition under consideration.

Before I go any further it would perhaps be best to state some interesting data regarding the preparation.

Pyoktanin, first brought to our notice by Profs. STILLING AND WORTMANN of Strassburg, is insoluble in Collodion, Ether and

Benzin. It is soluble in Chloroform, in 50 parts of Glycerin, and in 12 parts of 90% Alcohol. It is also soluble in 30 parts of boiling water, and easily so in 50 parts of hot water. For most purposes, however, we require a cold watery solution, which can be made of any required strength up to a concentration of one part Pyoktanin in 75 parts of cold water.

Pyoktanin has been shown to possess great germ-destroying power, and this, in connection with its ready diffusibility in healthy and diseased animal tissues, makes it a very promising remedial agent, especially so as it is harmless compared to bichloride of mercury, carbolic acid and similar substances. It is devoid of any injurious effects on the human economy if used with proper precautions.

In large doses the physiological effects are as follows:

A young dog weighing 7 pounds received an injection of 0.24 gm. (gr. iv) in watery solution into the peritoneal cavity by means of the *smallest*-sized hypodermic needle attached to the nozzle of a large rubber syringe, which was especially made to fit for the purpose. At first the animal ran about in a circle quite rapidly; this stage of excitement continued twenty-five minutes, during which time the animal had 4 thin fecal evacuations and as many evacuations from the bladder, all having the characteristic Pyoktanin stain. Then a stage of quietude began, when shortly a change in respiration manifested itself; it became slightly increased in frequency (38 per minute) and yet labored. Expiration, at frequent intervals—that is, from the sixth to the twentieth respiratory act—was forced, appearing like a painful grunt, and this was accompanied by a contraction of the abdominal muscles similar to a person retching severely when vomiting.

Frequent attacks of tenesmus were present, but no copious fecal discharge after the first. The discharges resembled those of dysentery to some extent,—a bloody mucus stained with Pyoktanin. All control of the limbs was lost

one hour after the injection; the animal would stand for a little while if placed erect, the two hind legs separated,—apparently to afford a better support,—and then he would lie down; somewhat later he could not stand at all on the hind legs, but still maintained himself on the fore legs, for a short time. Previously a very lively animal, he now was listless. The temperature was only 98° per rectum (subnormal); gradually it fell more and more until 2 hours after the injection it was only 95° , and shortly before death it could not be taken, the mercury not rising at all when knocked down to the lowest point.

Towards the end the respiration became less labored and finally quite superficial, until towards the last it was only an occasional gasp, the head and neck thrown rigidly backward and the fore legs straightened out stiff, while the hind legs were not moved. Death seemed to take place from respiratory failure just $4\frac{1}{2}$ hours after the injection.

The autopsy showed some free fluid in the abdominal cavity, deeply stained with Pyoktanin; all the abdominal viscera were likewise deeply stained throughout their entire texture, especially the liver and spleen. The kidneys were in the same condition. The omentum, mesentery, in fact everything below the diaphragm, was not exempt from the staining.

The thoracic organs, however, were not stained. The heart was unusually flabby, and empty; the lungs very anemic and not distended, but appeared rather as though collapsed; the brain and spinal cord anemic.

A dog weighing 12 pounds received 0.3 gm. [gr. v] in saturated solution into the peritoneal cavity and showed similar symptoms, death taking place 5 hours after the injections. Post-mortem appearance similar.

Prof. VON MOSETIG-MOORHOF, in a paper (*Wiener Med. Presse*, 1891; No. 6;—see MERCK'S BULLETIN, 1891; No. 3) on the treatment of inoperable new growths, reports several cases treated by him with blue Pyoktanin. The first was a woman of 66 years with a sarcoma of the inferior maxillary

which had attained such size that she was unable to partake of any food owing to the size of the tumor, necessitating feeding by means of a stomach tube. The staining treatment was commenced, and after 35 injections of from 3 to 6 grammes of solutions from 1:500 to 1:300 had been used, the patient was able to close her mouth and could partake of the ordinary hospital diet. The tumor was reduced to about one-third of its original size and the dribbling from the buccal cavity had ceased.

Another case of cysto-sarcoma of the left sterno-clavicular articulation in a man *æt.* 58 years was equally benefited.

A papillomæ of the bladder in a patient of 60, very much exsanguinated by repeated hemorrhages, was treated with injections of 20 grammes of 1:2000 into the bladder every other day, which was allowed to remain in the viscus. This patient was also much benefited. Some other cases are also cited by VON MOSETIG, the most remarkable of which, however, is a large pelvic tumor (sarcomatous?) which assumed such size as to interfere with the movement of the bowels, finally making colotomy necessary. The tumor having ulcerated above Poupart's ligament, the Pyoktanin treatment was adopted, 3 grammes of 1:500 solution being used for the subcutaneous injection. The result was astonishing; after 15 injections the monstrous tumor was reduced to one-third of its former size and the patient able to be about and attend to his usual vocation.

A very valuable paper on the effect of the aniline dyes has been published by Dr. WILLY MEYER (*Medical Record*, April 25, 1891); he had observed at the writing of that article 4 cases of cancer which were beneficially influenced by Pyoktanin (Blue). MEYER's cases were 1 epithelioma of the scalp, 1 epithelioma of the face, and 2 of cancer of the breast.

A case of carcinoma uteri, also favorably influenced by the local application of this substance (1:300) is reported by Dr. VICTOR BACHMAIER (*Wiener Med. Presse*, 1891; No. 36). When first seen the patient was extremely anemic, and complained of having bled from

the vagina uninterruptedly for more than 3 months,—at times passing blood-coagula as large as a child's head. Examination revealed the uterus immovable, both parametria infiltrated as hard as a board, the vaginal portion transformed into a cloven bloody and ichorous ulcer; the anterior vaginal wall also carcinomatous for a distance exceeding 4 centimetres.

After injecting $1\frac{1}{2}$ –3 syringefuls of a 1 : 100 solution of Pyoktanin dividedly at 2 or 3 points of the neoplasm (later-on even into the adjacent sound parts of the vagina) every second day for 4 months, the patient was considerably stronger and free from *all* the annoying symptoms of anemia; the ulcer on the uterus was perfectly flat and smooth and covered with healthy granulations, the discharge only scanty and no longer bloody or ichorous, hemorrhages wanting, uterus movable, infiltration of the parametria considerably less, and the ulcer on the anterior vaginal wall *healed* for a distance of $1\frac{1}{2}$ centimetres.

Up to the date of Dr. B.'s report,—about 4 months later,—improvement had steadily progressed. Pain or febrile symptoms never followed the injections; nor did the case in any manner react unfavorably.

In the *Riforma Medica*, August 7, 1891, Dr. C. LODIGIANI reports Prof. CECCHERELLI's results in the surgical clinic of Parma University,—one case of sarcoma of the lower jaw, injections of 2 to 4 grammes of a 1 : 300 solution into the substance of the tumor every second or third day caused an apparent arrest of the growth for a few days, otherwise no improvement. 1 : 300 solution, applied with gauze for 4 months to an epithelioma of the cheek and lower eyelid, checked the spreading of the ulcer during that time. In a case of recurrent cancer of the breast the result was negative; in another case of the same nature, however, in a woman æt. 43, the epithelial proliferation was completely arrested and the pain relieved, but there was no tendency to retrogression.

Dr. M. BELLOTTI (*ibid.*) also tried the Pyok-

tanin treatment in two cases of malignant diseases, with the result of improving the local condition.

Now I will give my own experience.

The four patients who have been subjected to the Pyoktanin treatment by me are so similar in history and condition that a general description of one will suffice to give a clear perception of the rest. The ages of these women ranged between 42 and 53 years. All had been bleeding, irregularly, more or less for periods varying from 2 to 3 months; during the intervening time offensive leucorrhea was present, which was irritating to the genitals. The patients were emaciated, owing to the intense pain in the pelvis, localized principally in the sacral and lower part of the lumbar region; the pain was most marked at night, sometimes so severe that they could not sleep without frequently awakening; except one woman who had been under narcotics prescribed, previously to my seeing her, by another physician.

Their emaciation (which is very unusual to find in several successive cases) was due to loss of blood, leucorrhea, loss of sleep, and pain. The two latter factors have always seemed to me to play the most important part in bringing about that result.

Examination showed the vaginal walls infiltrated for from 1 to 4 centimetres [2.5—1.35 inches] downward from their attachment to the uterus; the anterior wall somewhat more extensively than the posterior. The vaginal portion of the cervix was all or nearly entirely destroyed by the neoplasm, the tissues breaking down readily under moderately forcible touch with the examining finger, and consequently freely bleeding. The parametria and the posterior folds of Douglas were extensively infiltrated; in one of the cases the infiltration was so extensive that the uterus was absolutely immovable even under an anesthetic, owing apparently to former para- and perimetritis; in the other 3 cases there was slight mobility, but removal by extirpation could not be considered in any case.

METHOD OF TREATMENT.

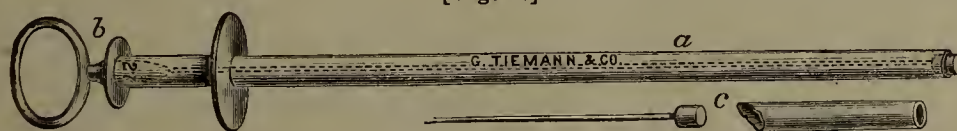
Under all the antiseptic precautions familiar to the modern surgeon, the patient should be *thoroughly* curetted, and all the diseased structure within the safe reach of the *sharp* curette removed. A small curette should not be used, as I have seen done frequently: that is a mere toy as against our task; but the largest size which is made is the proper instrument for the class of cases which are under consideration. After the curetting, a tampon of dry iodoform gauze usually suffices to check the bleeding. Only in one of my cases was the Paquelin cautery used after the curetting, to check the profuse hemorrhage.

After the lapse of 48 hours the gauze is removed and a douche of bichloride of mercury 1:2000 used as a disinfectant. The external genitals are also washed off by the nurse with the same strength of sublimate solution.

answer for two to three punctures. Next, the liquid is injected into the parametria on either side, then the posterior vaginal wall, and last the anterior infiltrated vaginal wall; sometimes making as many as 15 punctures at one sitting. I begin with the injection at the most distant part, because on withdrawal of the needle some of the fluid returns through the needle puncture and at once discolors the tissues immediately surrounding; so, were this to occur more proximally, the field for work would become so clouded that the injections could not be made with the requisite amount of precision.

The liability of entering the peritoneal cavity to any extent with the needle can be prevented by judging the amount of resistance offered by the tissues through which the needle passes; but even if the peritoneal sac be reached no harm would result if the rules regarding full asepsis are rigidly observed. When the

[Fig. I.]



[Fig. II.]



The patient being placed in PROPER Sims's position, and with the respective speculum and a Hunter's depressor, both *brightly* polished and applied *correctly*, one can readily see the entire uterine cavity *after* the curetting. The parts must then be thoroughly dried with aseptic absorbent cotton. Now the needle, which must also be disinfected, is introduced. At the fundus uteri, the syringe having been filled with an aqueous solution of Pyoktanin (Blue) 1:100, the needle is inserted from 0.5 centimetres [$\frac{1}{5}$ inch] upward, even to its full length, according to circumstances; *i. e.*, the thickness of the respective part where the injection is made; and while pushing the needle deeper the fluid is gradually pressed out by the piston, so that the deeper tissues are infiltrated with fresh staining fluid. One syringeful of Pyoktanin solution is made to

needle is introduced into the diseased vaginal structure, it must be made to take an oblique direction, so as to take in sufficient surface to stain. After having completed the injections, pure Pyoktanin powder is introduced into the uterine cavity by means of any suitable instrument—either by an ordinary suppository syringe, or better yet with the instrument represented in Fig. I—or absorbent cotton saturated with a 1:75 solution can be packed into the uterine cavity instead of using the dry powder. The best form of syringe for the Pyoktanin injections is shown in Fig. II; it is sufficiently long to reach any part of the tissues.

I have put particular stress on the proper position of the patient and the correct use of the speculum and depressor as well as the bright polish on these instruments, because if

each of these points be not accurately followed no satisfactory results can be obtained.

After the injections and introduction of the dry Pyoktanin have been completed, an ordinary cotton tampon, large size,—that is, about three times as large as those generally used by the majority of physicians,—is introduced to prevent the clothing becoming soiled. It is necessary for the patient to wear indifferent underwear and an occlusion pad, for even with the greatest care the clothing becomes somewhat soiled. The tampon is left in position until the second day, when it is removed by the patient by means of the attached string; a douche of several quarts of warm water is then used, to rid the interior of the genital tract of Pyoktanin as much as possible.

The Pyoktanin treatment is repeated every second day.

It will be noticed that, regarding dosage, the treatment here advised and practiced is more heroic than that hitherto reported; but I have so far at no time noticed any ill result.

Immediately after the treatment by injections, the patient usually experiences very intense pain; it, however, does not continue longer than from 20 to 30 minutes. Febrile reaction, or in fact any unpleasant symptoms, have never followed.

In the beginning the puncture holes made by the needle in the raw cancerous structures bleed quite freely, but soon this bleeding diminishes, until, after the twelfth to fifteenth puncture, the bleeding will cease immediately after the needle-prick.

The raw cancerous tissue gradually develops a more healthy granular surface, and the infiltration in 3 of my cases has slightly subsided; but, what is most noticeable, the cancer in none of these cases has developed any further. Besides, the analgesic properties which MEYER and others have already pointed out in the articles referred-to have proved perfectly marvelous. After a few applications my patients experienced some relief, and after from 15 to 20 they are able to rest quietly during the night, with little or no inconven-

ience from the pain; one patient who had been getting large doses of morphine rests better now without an opiate than she did formerly with the narcotic. On the whole, the results obtained are astonishing,—knowing by former experience how rapidly these growths usually progress.

I confidently hope that by the proper treatment with this drug we shall find a means to prolong life and alleviate suffering, and perhaps in some cases to produce a complete cure; which indeed has already been reported privately several times in cases of epithelioma.

It is of importance to remove as much of the diseased structure as possible with the sharp curette. It is in my view a serious neglect not to remove all the neoplasm which can readily be attained, before commencing with the remedy.

It may justly be asked, why do I extirpate the cancerous womb when we obtain such apparently brilliant results with Pyoktanin? The answer is simple: although I hope that a complete cure may be obtained in some cases with the Pyoktanin treatment, there is so far no positive proof to satisfy me that we have obtained absolute cures; and it is not proved to be a specific. On the other hand many cases are on record in which no relapse has occurred after vaginal hysterectomy, and hence in suitable cases I shall invariably advise total extirpation of the diseased organ.

I have also recently commenced to use Methylene Blue internally, in doses as large as the patient could bear; i. e., from 0.3 [gr. ivss.] pro die,—as recommended by EINHORN, RUDISCH AND MEYER; but I cannot say that any material improvement is produced by this addition to the local treatment.

The dose of Pyoktanin used hypodermically should not exceed 0.15 (gr. iiss.) in a $\frac{3}{4}$ to 1-% solution; applied locally to the surface it may be used ad libitum without fear. This limitation has of course reference only to cancer of the uterus.

If the hypodermic injections of Pyoktanin are to be placed in tissues covered by mucous

membrane, as the infiltrated vaginal wall, it is not advisable to use the solutions stronger than 1 : 200, lest, as I have seen several times, small abscesses form at the point of injection which for some days discharge blue-stained pus. How long the staining of tissues remains after an injection may be seen from the following case:

A woman, who in addition to a prolapse of the vagina, had a sarcomatous tumor over the sacrum, was given an injection of Pyoktanin, 30 minims of a 1% solution into the substance of the tumor, and this was not repeated until 10 days later, when, operating on the vagina, an exploratory incision was made into the tumor for the purpose of establishing the diagnosis with certainty. The tissues were as thoroughly stained for a considerable area as though the injection had been made but the day previous.

I have just noticed a communication from Dr. HOGE in the *Virginia Medical Monthly* for October, 1891, in which the author speaks of having used *six* Pyoktanin injections in all: the first, 10 minims of a 1 : 300 solution, which was repeated two weeks later; the next injection was made with a 1 : 200 solution, and finally 20 min. of a 1% solution was used. The case was reported as a complete failure. Dr. HOGE's failure to achieve a satisfactory result is not astonishing, since he used the remedy insufficiently.

Another explanation for unsatisfactory results might sometimes be found in the instability of Pyoktanin solutions.

It is perhaps not generally known that the solutions of Pyoktanin, either alcoholic or aqueous, whether weak or strong, will not keep long; especially when exposed to light they decompose very rapidly, that is, in the course of a couple of days, without showing their decomposition by a marked change in color. Hence the solutions should be made *fresh every day*; and unless used at once should be dispensed in a dark bottle.

No. 245 West 42d St., New York City.

NERIUM OLEANDER AS A SUCCEDANEUM FOR DIGITALIS.

By FELIX BARON VON OEFELE, M.D.,

Hengersberg, (Germany).

Why hunt for remedies to place beside, or by which to supplant, digitalis, when the latter possesses such pronounced action?—this question will here be asked by many a practitioner. Do we wish, by introducing new parallel remedies, to increase the drug-vocabulary of the pharmacies by a few items, so that—according to desire, habit, or schooling—one physician may employ exclusively one remedy,—another another? No; but with a greater variety of medicaments the physician can set down his indications more accurately; besides, just those cases in which he hitherto employed digitalis exclusively, are mostly cases of highly chronic disease. But, under continuance of the same therapy, a tolerance becomes established in the patient.

Quacks usually have but *one* panacea: when *it* fails, the public simply try some other quack. The physician, however, is expected to have a new device ready for every new emergency; otherwise patients with chronic affections will treat him like the quack, and make a change. But, in the course of time, the organism will develop tolerance toward every new succedaneum, likewise.

It is therefore not only of laboratory interest to study as many parallel remedies to foxglove as possible, but it is of direct interest to every practicing physician to be in a position to have easy recourse to a new member of the digitalis group.

OLEANDER has long ceased to be a novelty to the toxicologist and physician. During Napoleon's campaign in Spain there occurred several cases of poisoning from using freshly-peeled OLEANDER-branches as spits; other cases of poisoning have happened in consequence of stuffing venison with OLEANDER-leaves for transportation, or from confounding OLEANDER-leaves with bay-leaves. The first series of cases shows at all events what small doses only are required for the OLEANDER

poisons to act. Of the physiological investigations on OLEANDER I would mention:—SCHMIEDEBERG, *Archiv für Experimentelle Pharmacologie und Pathologie*; Vol. XVI., p. 157.

The only therapeutical investigation on OLEANDER which I have seen recorded is a dissertation by POULOUX on experiments made at DUJARDIN-BEAUMETZ's clinic. My own publications up to date are at the free disposal of any one who may feel interested in the subject.

The employment of drugs from pot-plants, as well as the use of alcoholic extracts made from the fresh plant, are to be discountenanced; as the latter invariably cause irritation of the digestive apparatus. The wood is inert; all other parts of the plant—such as bark, leaves, and fruit—contain active substances. I prefer preparations made from the fruit of plants obtained from the *Mediterranean* region.

In Munich I had at my disposal leaves from room-plants; leaves and bark from botanical gardens; and leaves, bark, and fruit from Florence. With these I treated in all 75 patients. Subsequently I had tinctures and extracts made from the leaves of pot-OLEANDER prepared by country druggists, for use in over 50 more cases. The plants used in these instances were mostly tub- or pot-plants whose roots had outgrown their soil and which consequently were imperfectly nourished and poorly developed. These plants dried up more from year to year than they grew; the fresh shoots usually were hardly a finger's length, and the dusty leaves scarcely yielded any juice when contused.

The action of these leaves as well as that of the bark was not satisfactory. Young, vigorously growing pot-plants, and those from the botanical gardens, were of greater value. But most effect on the heart was obtained with preparations of plants brought from the *Mediterranean* region. Disagreeable and irritating effects on the digestive tract have been described by earlier observers, but denied by others. My own observations are of both kinds. The acrid resins extant in the various

parts of the plant and which are soluble in alcohol but insoluble in water, irritate the digestive tract; but they can be included in or excluded from the preparations, according as the latter are made with strong alcohol or with water. The drug is best utilized by infusing with 5-10 % alcohol and macerating at a temperature slightly above that of the body. By subsequent addition to the finished tincture, the percentage of alcohol may be increased, or it may be reduced by glycerin. Such tinctures, of the strength of 1:10, are prescribed, pure or with syrup, in doses of 20 drops 2-5 times daily. As a rule, the following formula will suffice:

OLEANDER Tincture..... 3 iiss [10 gm.]
Peppermint Water..... gr. xv [1 “ “]
Twenty drops 3 times daily, with a spoonful of sweetened water.

The patients took the medicament for 6 days, on the average. I observed 427 days of OLEANDER medication with 74 patients at Munich. I also had some patients that took OLEANDER *in smaller doses* for 14-16 days—yea even 25 days—uninterruptedly. Gradually tolerance became established, especially when, after continued administration of OLEANDER, the medication was suspended for a few days, and then recontinued for some time. Still the tolerance was never so great as to prevent very considerable pulse-retardation and increase of diuresis being attained with a medium-sized dose. One patient was treated exclusively with OLEANDER from October 20 till December 5, interruptedly, and best success was had.

Besides this tolerance, there were observed, as a rule,—particularly under the use of alcoholic tinctures,—*cumulation and continuance* of the action on the pulse and the diuresis, for a week to a fortnight after discontinuing the medication. For this reason 16 patients were treated with OLEANDER only for one or two days, and 10 for three days. By increasing the dose, a prolonged after-action can be attained.

For instance, according to these formulas:

Comminuted OLEANDER fruit..... gr. xv [1 gm.]
Hot Water..... 3 XIII [50 “ “]

Macerate half an hour, strain, filter, and add:

Juniper Syrup..... 3 II [10 gm.]
To be taken in 24 hours, in 3 doses.

or:

Comminuted Oleander fruit..... gr. xv [1 gm.]
Cognac... }of each, 3 IISS [10 "]
Hot Water }

Macerate 24 hours in a warm place, strain, and add:

Wood-charcoal..... gr. VIII [0.5 gm.]
Shake, filter, and add:

Oxymel Squill. 3 III [15 gm.]
Teaspoonful every 4 hours.

Regarding the *taking* of OLEANDER, the acrid resins impart a very disagreeable taste to the alcoholic extracts; whereas the prepara-

tions free from these resins are quite agreeable to take,—which fact, taken in consideration with the irritation of the digestive tract which the resins provoke, makes it imperative to exclude these substances from the OLEANDER preparations—a point which has been observed in the above formulas.

—Contrary to SCHMIEDEBERG, I cannot confirm the *identity* of the active constituents of digitalis with those of OLEANDER: the latter was often efficacious where the former failed, and vice versa. Besides, when tolerance has been established for the one remedy, the other usually is still found to act.

CLINICAL PAPERS

ON LIVE TOPICS.

ABORTIVE TREATMENT OF CHOLELITHIASIS.

By Dr. GEORG STICKER.

[Read before the General Medical Society of Cologne.]

The morbid processes excited by gall-stones and which necessitate medical treatment are, first of all, the acute, paroxysmal attacks of impaction which assume the more or less typical form of hepatic colic; next in order are the occult occlusions of the bile-ducts, usually developing into chronic icterus; lastly, local lesions in the form of inflammations of the gall-bladder and bile-ducts, which may terminate in suppuration, ulceration or even cause an angiomatous tumefaction of the capillaries in the hepatic gland. There may also be developed an associated hepatic abscess, or the ulceration within the gall-bladder or bile-ducts may progressively erode the walls of the same, until the concretions escape into the peritoneal cavity or alimentary tract. If the inflammatory and ulcerating process causes an adhesion of the gall-bladder to the abdominal wall, the erosive action may penetrate the abdominal pariete and the integument and thus allow the gall-stones to escape externally, thus resulting in the formation of a biliary fistula.

NAUNYN classifies those diseased processes which are caused by the mere presence of the stones in the gall-bladder as typical and regular cholelithiasis; and those which are the result of an infection or accompanied by suppurative inflammations, ulcerations, angiomatous formations, hepatic abscesses, fistulas, and the manifold injuries to the viscera through these secondary pathological conditions, as irregular and atypical forms of cholelithiasis.

The three indications for the treatment of regular cholelithiasis are: to diminish the size of the gall-stones; to remove them; or—at least—to render them innocuous. Whether we can meet all three indications in any individual case, and in what ways and with what remedies we can meet each, must be determined in each case for itself. The diminution of the gall-stones would have to be attained either by mechanical or by chemical means. The possibility and utility of a mechanical diminution is not entirely precluded, if we think of the nature of a biliary calculus in its early stage of formation, when it consists of a soft nucleus and a but very slightly solid stratified rind. At all events I recommend careful massage of the gall-bladder region once or twice daily, in those cases where the appear-

ance in the stools of yellow or grayish-red sand-like concretions indicates that the disease is in its infancy, or where the little, immature calculi themselves are found in the excrements. If the patients themselves perform the massage, danger of harm accruing therefrom is certainly very remote.

The chemical diminution—yea, complete solution—of the gall-stones has notoriously been the constant first aim of many physicians. Even if ether, turpentine-oil, and chloroform are capable of dissolving the components of gall-stones in a test-tube, it does not follow even distantly that the same action will obtain in the living organism. In the system the calculi always lie in cavities into which no fluid—save the bile and some mucus, and, at the most, the substances secreted by the liver with the bile—can penetrate. It must, at any rate, not be supposed,—most remotely even,—that the solvents mentioned could, when ingested, reach the calculi in the gall-bladder or in the bile-ducts by way of the bile, or possibly by any other way, in sufficient concentration to manifest their solvent action to any appreciable extent. The comparative test-tube experiments are consequently no experiments at all,—in the true sense of the word,—but mere play. The only true experiment would be to test the solubility of gall-stones in the various fluids obtained from an animal with a biliary fistula, or—better still—from a human being with a biliary fistula, after the ingestion of various medicaments, under various circumstances. That would be an experiment analogous to the one indicated by PFEIFFER to test the solvent power of urine on uric acid. Still it must be considered, in this experiment even, that in a cholelithiatic person the circumstances are different from what they are in an individual whose biliary fistula is of traumatic origin, or from those in a fistulous animal.

The assumption that the formation of gall-stones is ascribable to a lack of sodium taurocholate in the bile, and the fact that a solution of sodium choleate dissolves both cholesterin

and pigmentous concrements (the components of gall-stones),—induced SCHIFF to recommend this salt as a remedy for cholelithiasis. The recommendation would have been sensible and perhaps also crowned with success, had the above accepted assumption proved correct. But practice has not seen the expected success, and further investigations have proved the supposition to be untenable.

At all events it is certain, that neither the theoretically constructed solvents nor the empirically efficacious medicaments in cholelithiasis—in the first rank the alkaline waters, then mercury, nitric acid, salicylic acid, olive oil—have ever dissolved or even only diminished a matured gall-stone in the organism: for, if such had been the case, some histologist could—considering the frequent and abundant use which has been made of those remedies—have at least demonstrated the incipient stages of those actions; whereas, in fact, the traces of caustic or escharotic action on the concretions, occasionally found, have always permitted of other explanations. Whether, after all this, the search for colophene solvents of the calculi is justifiable or not,—remains an open question. NAUNYN is certainly right in asserting that the bile always contains, in its choleates, an excellent solvent, at least of the principal constituent of gall-stones—cholesterin; and that it really has a solvent action on the calculi, if it only flows in a sufficiently powerful stream.

The indication of dissolving the gall-stones could therefore be met most readily if we had remedies by means of which we could provoke a permanently increased flow of bile. It is well known that the question, whether there really are any cholagogues, has been discussed over and over again, and that some obstinately answer it in the affirmative, others emphatically in the negative. I am content that at least the idea of a cholagogue action in the sense of a *lasting* excessive stimulation of the function of the specific glandular elements in the liver is nonsense, as is also that of a diuretic or sialogogue action, taken

in the same sense. Nobody doubts that every glandular organ and every muscle can be stimulated to increased activity; but likewise nobody will doubt the fact that any stimulation of this kind—no matter how intensive—is always followed by a corresponding period of fatigue, and that the more intensive the specific work was, the more extensive will the consequent impairment of function and the complete rest necessarily be. There is no such thing as a chronic profuse glandular secretion. If we speak of a chronic sialorrhœa,—which we can induce with mercury,—we employ an entirely unreal designation which every one is conscious ought really to be replaced by the expression “hydragogue action on the salivary glands.” For, the so-called salivation, after the use of mercury, is not a lasting, increased excretion of elements of saliva, but simply a profuse secretion of *water*,—as in diabetes insipidus,—admixed with the real saliva. If we should provoke a flood of bile, by means of mercury or any other remedy, in the same sense as we bring on a flood of saliva and—under certain circumstances—a flood of urine, then nobody, having a clear conception of the activity of the organism and its elements, would regard it as a prolonged secretion of physiological bile, but, knowing the results of analysis in advance, would consider it only as a secretion of abnormal quantities of *water* in and with the bile. There is no doubt, clinically, that such an increased secretion of water can obtain in the liver in certain morbid conditions, and occasionally also after the employment of certain medicaments. But experimental physiology has taught us that we are not as yet in a position to artificially bring about this condition in the organ in question even with but a small degree of certainty; whereas it is a very easy matter to do so in the case of the salivary glands, the kidneys, and the intestines. Even if it were possible in the liver, our ability to effect the solution of the gall-stones within the body would not be increased in the least thereby, inasmuch as an increased proportion

of water in the bile, without a simultaneous increase in the proportion of *choleates* therein, can exert no influence on the calculi.

“Cholagogue action,” in the solely conceivable and actual sense,—that is to say, as the greatest possible *transient* increase of biliary secretion,—can doubtlessly be attained by means of certain medicaments—such as calomel, salicylic acid, podophyllin, etc.—just as surely as the secretion of saliva can be stimulated by means of spices. But this artificial stimulation of the secretion of bile can never be compared with the physiologic one produced by a full meal; and evidently NAUNYN has struck the key-note in calling a *full, mixed meal* the best cholagogue. Again we must agree with this investigator when he says that we cannot meet the indication of dissolving the gall-stones in any other manner than by *removing the obstacles* to the free flow of bile. But these obstacles are—as is well known—principally sedentary habits of life and tight clothing,—as well as a long series of diseased conditions in the digestive, circulatory, and respiratory systems.

Before closing the discussion of the possibility of dissolving gall-stones in the bile-ducts, I should like to remark briefly, in order to avoid any misunderstanding, that I have observed the remedies recommended for that purpose—such as DURANDE’s Mixture (3 parts sulphuric ether and 2 parts turpentine oil); RADEMACHER’s Mixture (3 parts ether spirit and 2 parts turpentine oil), chloroform, etc.—to act very beneficially in many cases of *regular* cholelithiasis, and that I employ them—particularly the first-mentioned—quite frequently. I am therefore far from being blind to the useful and helpful properties of a remedy whose recommendation—it is true—is based on a false hypothesis, but whose efficacy has often been proved in practice. It will be seen, however, from the example furnished by the remedy to be discussed later, that the mode of action of the remedies heretofore in question is other than that of solution, and consists in serviceably assisting the organism

in spontaneously fulfilling the second indication in the direct therapy of cholelithiasis,—to-wit, removal of the gall-stones.

There are three series of observations on the natural passage of gall-stones, under definite conditions, that must positively be considered, if we will not content ourselves entirely with planless experimentation in the choice of further remedies and measures for the fulfillment of that (second) indication. The first series dates back as far as 1681—that is, long before our clinical knowledge of cholelithiasis was established—when GLISSON directed attention to the observation made by butchers, that gall-stones were found much more frequently in cows and sheep that had been kept in the *stable* and fed on *dry* feed only, from November to March, and killed in the spring, than was the case in animals that were fed on *fresh pasture* in the summer, and killed in the fall. From this observation, if really true, there could be inferred that either the exercise or the fresh air, or the green feed in the pasture, or these circumstances together, favor the passage of gall-stones, and the practical conclusion might be drawn therefrom to prescribe for cholelithiatic patients, besides exercise in the open air, the use of green vegetables and fresh plant-juices,—as has, in fact, been done. But inasmuch as BOLLINGER—a man experienced no less in veterinary pathology than in human pathological anatomy—declares GLISSON's statement as unfounded, we will for the present refrain from basing theoretical attempts at cures upon it; all the more so, because the uselessness of a diet for man similar to that of a pasture-animal has already been sufficiently demonstrated by such experiments.

The second series of observations on abundant and easy passage of gall-stones is found in the numerous and undoubted experiences furnished by the abortive cure of cholelithiasis under the use of alkaline saline waters,—in the first place at the hot springs in Carlsbad and at Vichy. But the experience that gall-stones, which, for instance, were not at all affected by

an imitation Carlsbad cure at the patient's home, were soon driven away at Carlsbad itself, is very frequent: a proof of the old rule that it is not only the remedies themselves that the success of treatment depends on; but also, in particular, the method of employing them, and serviceable concomitant circumstances.

It is impossible even to guess at an explanation of the cholelithofuge action of the Carlsbad springs which we set forth as a paradigm, as long as the mechanism of the *spontaneous* passage of gall-stones is not clear to us. Such a spontaneous discharge of gall-stones is frequently observed after attacks of hepatic colic. These colics furnish the third series of observations on the abortive termination of cholelithiasis, and in them we will study the mechanism alluded-to above.

[TO BE CONCLUDED IN NEXT NUMBER.]

SALT-WATER ($\frac{1}{2}$ teaspoonful to the quart), by rectal injection, has been recommended in severe *acute anemia*,—for instance, from great loss of blood *intra partum*.

IODINE-MIXTURES—according to Dr. MANN—are best prescribed with *molasses*, because the glucose contained in the latter not only disguises the taste of the iodine salts, but also protects them against chemical changes.

YEAST has been highly lauded by Dr. PETER EADE as an application for promoting the healing of *lupoid ulcers*. It is applied either in its pure state, or made into a poultice with hot soaked linseed-meal to make the application warm and pleasant.

CORROSIVE SUBLIMATE, injected into an *anthrax* tumor at several points, in doses of 2 drams of a $\frac{1}{10}\%$ solution dividedly, has produced good results in the hands of Dr. J. HORNSEY CASSON. The injections were often repeated, in broken doses likewise, on the following days.

NEW REMEDIES,

AND NEW LIGHT ON OLD ONES.

**BETA - NAPHTHOL BENZOATE;—A NEW
INTESTINAL ANTISEPTIC.**

For some time past there has been employed in medical practice, as a substitute for beta-naphthol, a combination of the latter with salicylic acid known as betol, which, however, was inadmissible in cases associated with renal disease—where salicylic acid is contra-indicated.

This induced Drs. YVON AND BERLIOZ, of Paris (*La Semaine Médicale*), to look for another organic acid which would combine with beta-naphthol, but be free from the disadvantages of the salicylic-acid combination. Benzoic acid was fixed upon as likely to form a useful salt, because—according to the authors—it is less toxic and a more powerful antiseptic than salicylic acid.

These considerations led to the preparation of BETA-NAPHTHOL BENZOATE or—as it may be called for brevity's sake—benzo-naphthol. It is obtained by treating beta-naphthol with benzoyl chloride, under certain conditions, dissolving the product obtained in boiling alcohol, and purifying by repeated crystallization from alcohol or—better still—from its alkaline solutions. Its formula is $C_{10}H_7O.C_7H_5O$. A solution of it in boiling alcohol, being cooled, crystallizes into fine needles united in roundish groups. After purification by means of very dilute soda-lye, BETA-NAPHTHOL BENZOATE forms a whitish crystalline powder, almost insoluble in water and in ether, but freely soluble in chloroform (3:100); soluble also in alcohol,—its solubility in the latter increasing rapidly with the elevation of temperature. Its melting-point is $110^{\circ}C$ ($230^{\circ}F$). When introduced into the intestine it breaks up into beta-naphthol (which remains in the intestine until passed with the feces) and benzoic acid (which is eliminated by the kidneys in the form of alkaline salts—partly alkaline hippurates).

Although therapeutical experience with the new drug is as yet somewhat limited, the authors feel justified in drawing therefrom the following conclusions:

- 1.—BETA NAPHTHOL BENZOATE is but very slightly toxic.
- 2.—It is as powerful an intestinal antiseptic as any of its congeners.
- 3.—It encourages diuresis.
- 4.—The absorbed portion is rapidly eliminated by the urine.
- 5.—It can be administered in large doses (5 grammes [75 grains] *daily* in adults, 2 grammes [30 grains] in children); but it is advised to give small and frequently repeated doses rather than rare and large ones. The dose of 0.5 gramme [7.5 grains] or even of 0.25 gramme [4 grains], in a wafer or with a suitable vehicle, will suffice in most cases.

**BORIC ACID IN FURUNCULOSIS AND IN AN-
THRAX.**

In a paper read before the ACADEMY OF MEDICINE at Paris, Dr. ALISON, of Baccarat, recommends the *simultaneous internal and external* employment of BORIC ACID as a simple and efficacious treatment of furunculosis. He considers the carbolic acid spray, corrosive sublimate baths, and analogous means, well enough suited to hospital use, but difficult of application in private practice. The author's method, as reported by *Sem. Méd.*, consists in administering, for a week to a fortnight, 80 centigrammes [12 grains] of BORIC ACID *daily*, in 2 wafers. At the same time he applies externally, by gentle friction, a 4% aqueous solution, *warm*,—4 or 5 times a day. In the intervals between the frictions, compresses saturated with the same solution are applied to the affected parts. It is claimed that this treatment will abort furuncles yet in the commencement of development, rapidly cure

those already arrived at maturity, and prevent new eruptions.

—The author considers the BORIC ACID medication equally efficacious in anthrax. He has obtained a great improvement both in the local and general condition: the pain, peripheral redness, and hardness of the anthrax diminish; numerous apertures rapidly form for the elimination of the core; the fever falls, excitation and insomnia abate; and the anthrax heals—in the majority of cases—without surgical interference.

BORIC ACID, INTERNALLY, IN TYPHOID FEVER.

Dr. L. E. KEEGAN reports on 52 cases of Typhoid Fever in which he employed BORIC ACID with success, internally, in dose (according to *Bull. Gén. de Thérap.*) of 10–20 grains [0.6–1.2 grammes] every 4 hours. Tympanites and diarrhea rapidly diminished, the tongue became moist and clear, and the general condition improved considerably. In 2 cases, it even appeared as if the disease had been aborted by this treatment.

The BORIC ACID may be combined with other antiseptics, as in the following formula:

Boric Acid.....	} of each, 3 — [2 gms.].
Beta-Naphthol....	
Bismuth Salicylate	
Salol.....	

Dispense in 8 wafers!—One, 4 or 5 times daily.

CAMPHORATED SALOL IN OTORRHEA.

CAMPHORATED SALOL is obtained, according to M. DÉSESQUELLE, by mixing 2 parts of powdered camphor with three parts of salol, heating gently until completely melted (without the addition of either alcohol or water), and filtering. It is a colorless liquid, oily to the touch; insoluble in water, but very soluble in ether, in chloroform, and in oils. It rapidly decomposes when exposed to air and light.

—Dr. PH. PÉGOU (*La Semaine Médicale*) employs CAMPHORATED SALOL in the treatment of suppurative otitis media. It is applied by

means of a small cotton tampon, saturated with the medicament, and introduced into the affected part. The tampon is withdrawn after 24 hours,—or sooner,—if suppuration is profuse. The application is repeated every other day; in the intervals, the patient injects a luke-warm solution of boric acid, morning and evening,—or more frequently,—according to the amount of suppuration present.

According to the author, CAMPHORATED SALOL, associated with appropriate general treatment, usually cures otorrhea in a period varying from 4 or 5 days to 20 days,—at the most. CAMPHORATED SALOL is claimed to have the advantage over most of the medicaments employed in otorrhea, of being neither painful nor irritating.

CAMPHOR IN INFLUENZA.

During the recent epidemic of influenza in England, Dr. F. W. DEVEREUX LONG had ample opportunity, as he states to the *British Medical Journal*, of testing the efficacy of various methods of treatment,—150 cases, on an average, coming under his care every week. Taking the disease to be simply due to a vasomotor change, ergot and digitalis, in combination, were at first given in a few cases; but upon afterwards regarding it as a zymotic disease with probably a special bacillus of its own, CAMPHOR was tried, and with so much success that thereafter rarely anything else was prescribed. The following is the formula:

Camphor Spirits..	} of each 3 II [7.5 gms.].
Compound Laven- der Tincture....	
Chloroform Spirits.....	3 I [3.75 “].
Tragacanth Mucilage.....	3 II [70 “].
Distilled Water... enough to make	3 VI [180 “].
Two tablespoonfuls every 4 hours.	

CHLOR-PHENOL, MONO-;—A NEW VOLATILE ANTISEPTIC.

MONO-CHLOR-PHENOL, — $C_6H_4Cl.OH$, — introduced by TACCHINI, of Pavia, is a very volatile fluid, whose vapor is heavier than air. According to Dr. PASSERINI of Casate-Nuovo (*Gazzetta degli Ospitali*), it is a powerful anti-

septic, free from the caustic and irritant action of the related tri-chlor-phenol. He recommends it for inhalation in diseases of the respiratory passages,—ozena, laryngitis, bronchitis, etc., but particularly in *pulmonary tuberculosis*. Five cases of the latter affection—all of them in the incipient stage—were treated with the vapor, which, being heavier than air,—as already mentioned,—presumably reaches the bronchioles and even the alveoli of the lungs. The inhalations were made by means of a funnel with a double-curved neck, into the cone of which a pledget of cotton was introduced, the MONO-CHLOR-PHENOL being dropped upon the cotton.

Dr. PASSERINI states that under the influence of the MONO-CHLOR-PHENOL, the sputa diminish in quantity and lose their purulent character. All his cases have completely recovered in two months of treatment, and were apparently well at the date of this report—according to the doctor's statements.

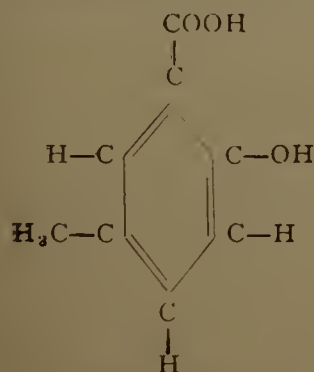
The claims put forth are:

1.—The inhalation of MONO-CHLOR-PHENOL is easily borne in advanced phthisis, and is convenient in application.

2.—No injurious effects arise from its continuous use.

3.—Changes in the quality and quantity of expectoration continue till pus and bacilli disappear; cough is diminished; fever is reduced; appetite and sleep soon return; the weight of the body increases rapidly, and local improvement is speedily attained.

CRESOTIC ACID, PARA-,



—is in white needles, melting at 151°C [303.8°F]; easily soluble in alcohol, ether, and chloroform; slightly soluble in cold water.

According to Prof. DEMME (in *Jahresbericht des Jenner'schen Kinderhospitals in Bern*), *it alone*, of the three modifications in which CRESOTIC ACID has been obtained (ortho-, meta-, and para-), can be employed therapeutically without drawbacks (in the form of its sodium salt, described elsewhere in the present issue of this journal).

ETHYL CHLORIDE;—A LOCAL ANESTHETIC.

ETHYL CHLORIDE (mono-chlor-ethane; $\text{C}_2\text{H}_5\text{Cl}$) may be obtained as a by-product in the manufacture of chloral; but it is best prepared by saturating an artificially cooled alcoholic solution of zinc chloride with hydrochloric acid gas. At ordinary temperatures it is a gas; but it is easily compressed, and then forms a colorless liquid of an agreeable etheral odor, boiling between 10 and 12°C [50 – 53.6°F], and burning with a green flame.

This substance appears in the markets in the compressed state, in hermetically sealed tubes containing 10 grammes, drawn out to a capillary point. Owing to its low boiling-point, it is admirably adapted, in this form, to the rapid production of local anesthesia. When the drug is required for use, the point of the tube is broken off at a *marked* spot, and the opening deflected somewhat downwards; whereupon the ETHYL CHLORIDE issues in a fine stream, to be directed upon the part to be anesthetized. The stream can easily be made weaker or arrested entirely by simply closing the opening with the finger; or made stronger by grasping a larger portion of the tube with the hand, and thus raising the temperature of the contents.

The 10 grammes contained in each tube suffice to completely anesthetize the skin and the parts immediately beneath it over a surface and to a depth ordinarily sufficient for small operations. It is best to hold the tube about 15–25 centimetres [6–10 inches] away from the part to be anesthetized,—thereby avoiding excessive and useless cold. The minimum temperature obtained from ETHYL CHLORIDE in

physical experiments has been -35°C [-31°F].

—According to the experiences of FERRAND (*Repertoire de Pharmacie*) and GRANDCLÉMENT (*Lyon Médical*), ETHYL CHLORIDE may be used with advantage as a local anesthetic in *minor and dental surgery*,—for removing ingrown nails, opening abscesses, etc.,—and for relieving the pains in facial and intercostal neuralgias. Its use is particularly indicated in extracting teeth. According to Prof. C. REDARD (*Revue et Archives Suisses d'Odontologie*), in the extraction of teeth in the lower jaw, the stream of ETHYL CHLORIDE is directed externally against the cheek, over the inferior maxillary nerve; while in the extraction of teeth from the upper jaw, it is directed in front of the ear, at the exit of the trigeminal nerve.

The ETHYL CHLORIDE may also be sprayed directly upon the gums; in this case the mucous membrane must be dried, and the sound teeth as well as the mucous membranes of the mouth protected by means of a napkin. During the application the patient must not breathe through his mouth, but through his nose.

The only drawback of ETHYL CHLORIDE is its great inflammability: it must consequently be used at a safe distance from a flame,—preferably under electric light. Its application does not occasion any untoward accessory symptoms, and it has no influence on the brain. In this respect it has a great advantage over methyl chloride, $\text{C}_2\text{H}_5\text{Cl}$,—which has been so warmly recommended for the production of local anesthesia, but whose application is followed by a weakness of memory usually lasting for more than twelve hours. Another disadvantage of methyl chloride is its low boiling-point (-17°C [1.4°F]), owing to which it evaporates very rapidly when liberated, and produces in consequence extraordinary cold, which, when applied to the body, may occasion destruction of tissue.

It seems to be, therefore, merely a question of time that ETHYL CHLORIDE will entirely supplant its lower homologue in surgical practice.

GALLACETOPHENONE; — A SUCCEDANEUM FOR PYRO-GALLIC ACID.

Dr. L. VON REKOWSKI, of Prof. NENCKI'S INSTITUTE at Berne, has made a series of investigations with this new substance, which is reported to have the same therapeutic properties as pyro-gallic acid, without being poisonous,—the latter because of its slighter reductive power. According to the author (*Therapeutische Monatshefte*), GALLACETOPHENONE— $\text{CH}_3\text{CO.C}_6\text{H}_2(\text{OH})_3$ —is a tri-hydroxy-benzene in whose molecule a fourth hydrogen has been replaced by an acetyl (mono-methylketone) group. It oxidizes so slowly even in alkaline solutions, that alkaline salts of it could be formed.

GALLACETOPHENONE is a pale-yellow powder, which readily crystallizes from its aqueous solution in yellow needles; melting at 70°C [158°F]; scarcely soluble in cold water (0.18:100), easily so in hot water, in alcohol, and in ether, and soluble in glycerin in every proportion. Its solubility in cold water can be increased by adding sodium acetate. (4 grammes [1 dram] of GALLACETOPHENONE can be kept in solution in 100 cubic centimetres [$3\frac{3}{8}$ fl. oz.] of water—previously heated—by the addition of 30 grammes [1 oz.] of sodium acetate).

Experiments made on dogs and on rabbits proved the substance to be non-poisonous: the former bear daily doses of 4 grammes [1 dram] of GALLACETOPHENONE for a long time without the slightest disturbance.

GALLACETOPHENONE proved to be an efficacious *antimycotic*: 1 part added to 100 parts bouillon-culture of mycotis pyocyaneus, of mycotis prodigiosus, and of staphylococcus aureus, sufficed to completely kill all these bacteria.

The clinical experiments thus far made with this substance in psoriasis, have given satisfactory results: the beneficial influence of the medication manifested itself even in 12 hours. It was applied in 10% ointment with vaselin.

One advantage of GALLACETOPHENONE over many other similar medicaments is, that it does not soil the patient's linen.

HYDROCHLORIC ACID IN DIPHTHERIA.

Dr. S. H. KRASZEWSKI, of Ivyë (*Gazeta Lekarska*), has tried HYDROCHLORIC ACID in six typical cases of croup in children, aged from $\frac{1}{2}$ to 3, and in five cases of faucial diphtheria in two children and three adults. The following formula was used: Liq. ferri perchloridi, *Ph. Ross.* (that is, equal parts of the iron salt and distilled water), 4 grammes; acidi hydrochlorici, 1.0 g.; aq. destillatæ, 200.0 g. M. D. S.: A teaspoonful every fifteen minutes for one hour; then every thirty minutes for three or four hours; later-on every hour.—In faucial diphtheria the remedy was applied locally as follows: Liq. ferri perchloridi, *Ph. Ross.*, 8.0 g.; acidi hydrochlorici, 1.0 g.; aq. destill., 30.0 g. M. D. S.: To be painted over the affected area with cotton wool every two hours, a fresh piece being used on each occasion.—The treatment lasted from two to five days, the only adjuvants employed being frequent gargling with a 4-per-cent solution of boric acid in faucial diphtheria and the internal administration of a 1.5 per cent solution of copper sulphate in croup (as an emetic when symptoms of laryngeal obstruction were present). Every one of the patients made an excellent recovery. In four out of five faucial cases the diphtheritic deposits vanished completely and permanently in from twenty-four to forty-eight hours, the throat becoming normal within three or four days. The fifth patient recovered in a week. The laryngeal cases (of which two had been apparently hopeless) were cured in from three to five days. In none were any unpleasant accessory effects observed.

MALE FERN—ITS VERMIFUGE PRINCIPLE.

Although most investigators are agreed that the vermifuge action of MALE FERN is to be attributed to filicic acid rather than to an essential oil or any resinous body, the toxic properties of filicic acid are still disputed, owing to the frequent occurrence of cases in which it appears inert. Recent investigations have, however, indicated that the crude precipitated acid is incomparably more active than the

pure crystalline product. POULSSON (*Archiv für Experimentelle Pathologie und Pharmacologie*), in a communication from the PHARMACOLOGICAL INSTITUTE at Strassburg, says that if the pure, crystalline, completely inactive filicic acid be dissolved in alkalis and reprecipitated by any acid, the amorphous precipitate so obtained possesses exactly the poisonous properties of the extract. He further shows that these two physiologically different modifications of filicic acid also differ in chemical relations, and that there is little doubt that the inactive crystalline body is an anhydride or lactone of the amorphous filicic acid, and is better termed *filicin*. Filicin melts at 184.5°C [364.1°F], filicic acid at 125°C [257°F]; the latter is much more soluble in alcohol, and can be readily converted into filicin by allowing the ethereal solution to stand several days. Analyses and Raoult determinations by POULSSON led to the formula $\text{C}_{35}\text{H}_{42}\text{O}_{13}$ for the acid, and $\text{C}_{35}\text{H}_{40}\text{O}_{12}$ for filicin. From experiments upon frogs it appears that filicic acid affects the central nervous system, the heart, and muscles. With rabbits the fatal dose was found to be 0.1 gramme [1.5 grains] when injected subcutaneously, but 0.5 gramme [7.5 grains] when administered by the stomach,—since it is absorbed very slowly by the intestine. Doses of 1.5 gramme [23 grains] filicin introduced into the stomach of rabbits produced no toxic symptoms. Filicic acid appears well adapted for therapeutic use, since it is easily dissolved, held in solution in the intestines, and is only absorbed very slowly, thus effecting the expulsion of parasites without injuring the organism of the part.

PENTAL, A NON-HALOGENOUS ANESTHETIC.

PENTAL (tri-methyl-ethylene; β -iso-amylene), — $(\text{CH}_3)_2\text{C} : \text{CH}.\text{CH}_3$,—is a tertiary amylene obtained by heating amylene hydrate in presence of acids. It is a colorless liquid, of specific gravity 0.6783 at 0°C [32°F]; insoluble in water, but miscible in all proportions

with alcohol, chloroform, and ether. It boils at 38° C [100.4° F], and burns with a luminous flame. It is as highly inflammable as ether, and should therefore not be brought near a flame.

—PENTAL was recently recommended by Prof. Dr. HOLLÄNDER of Halle (*Therapeutische Monatshefte*) as an inhalation-anesthetic for minor surgical operations—such as extraction of teeth, etc. He asserts that no untoward effect is produced on the membranes of the mouth and respiratory passages; that it has never failed him; that unpleasant after-effects are exceptional; and that even in large doses it seems to be absolutely safe. Pure PENTAL consisting only of carbon and hydrogen, to the exclusion of the halogens,—the absence of evil after-effects appears quite natural.

PENTAL is best administered by means of JUNKER'S inhaler (see A. BUM, "Therapeut. Lexicon," Vienna, 1891; p. 1127). In this way the unpleasant odor of the compound is weakened. Narcosis is produced in about 40–45 seconds, and can be prolonged as desired. A considerable drawback to its general employment is its high price: as compared with ethyl bromide it costs about thrice as much to produce narcosis,—12–20 cubic centimetres [5–8 fl. drs.] being necessary for this purpose.

SODIUM PARA-CRESOTATE AS AN ANTIPYRETIC, AND AS AN INFANTS' INTESTINAL ANTISEPTIC.

SODIUM PARA-CRESOTATE — $C_8H_7NaO_3$ — is a micro-crystalline powder, of bitter taste; soluble in about 24 parts of warm water.— (See, also: "Cresotic Acid, para-," on another page.)

DEMME's researches (*Jahresbericht des Jenner'schen Kinderhospitals in Bern*), have shown SODIUM PARA-CRESOTATE to be an excellent antipyretic for the treatment of polyarthritis rheumatica acuta, pneumonia, and typhus. It is true that it acts, on the whole, somewhat less energetically than sodium salicylate; in

compensation herefor, however, it is devoid of the untoward accessory effects of the latter.

Dosage:—(DEMME'S):—According to the patient's age: 0.1–1.5 gramme [$1\frac{1}{2}$ –23 grains];—*daily*: 0.4–4.5 grammes [6–68 grains];—in aqueous solution, with extract of licorice.

—In infants' gastro-intestinal catarrh, this Cresotate of Sodium acts similarly to resorcin. DEMME recommends the following:

Sodium para-Cresotate.	gr. 155–111 [0.1–0.2 gm.].
Opium Tincture	2–4 drops.
Brandy	℥ xv [1 gm.].
Acacia Syrup	3 i [5 "].
Distilled Water	3 viiss [25 "].

Teaspoonful every 2 hours.

SULPHAMINOL AS A TRAUMATIC ANTISEPTIC AND ANTISUPPURATIVE.

By Wm. ROBERTSON, M. D., Newcastle.

I have employed SULPHAMINOL in several cases with satisfactory results. So far I can say for it that it is painless and inodorous, and appears to be an antisympurative. It has, besides, a peculiar desiccating effect on wounds, which, under its influence, heal rapidly. These circumstances render it peculiarly suitable for the after-treatment of nasal operative wounds. These, according to my experience with it, heal up without suppuration and in a remarkably short time. Hitherto I employed iodoform and auramin. These, however, were unsatisfactory,—the former dangerous on account of irritation, the latter disagreeable from its color. SULPHAMINOL, in the form of powder, is blown into the nostril from day to day, no other application being required.

In disease of the antrum—a disease notoriously chronic in its course—it appears to have a rapidly beneficial effect. In such a case I observed rapid progress after other remedies—such as sublimate lotion and carbolic acid—had been used long enough. After insufflation of dry powdered SULPHAMINOL, a rapid decrease of swelling was noticed in the mucous membrane—as evinced by the ease with which lotions escaped *per viam naturalem*.

For diseases of closed cavities,—such as the antrum, frontal sinus, etc.,—this preparation seems to be highly suitable. — *The British Medical Journal*.

CHLORINE-WATER AS AN OPHTHALMOLOGIC DISINFECTANT.

Prof. H. SCHMIDT-RIMPLER, of Göttingen, after a large number of experiments—bacteriological, animal, and human—made with CHLORINE-WATER, salicylic acid, carbolic acid, thymol, potassium per-manganate, quinine, etc., has come to the conclusion that CHLORINE-WATER is *the most powerful* disinfectant for ophthalmologic use. The customary 1:5000 solution of corrosive sublimate—the strongest that is borne well by the eye—he regards as much weaker in disinfecting power than CHLORINE-WATER, which, for the last year and a half, has been the sole disinfectant employed by him in all operations on the eye. These latter included—according to the *Deutsche Med. Woch.*,—125 cataract extractions and 375 major operations. In the former, healing always progressed smoothly, and never did serous iritis supervene; the latter,—among which, naturally, there were many plastic operations,—all healed by primary intention. Prolonged opacity of the cornea—such as comparatively often follows the use of corrosive sublimate in cataract extraction, if cocaine be previously instilled into the eye—was never observed with CHLORINE-WATER; nor was any extensive superficial opacity of the cornea, shedding of epithelium, or eversion of the lid on closing the eye, produced by the use of CHLORINE-WATER in cataract operations.

It was proved that CHLORINE-WATER does not irritate the wounds or the conjunctiva: on the contrary, the latter discharges much less than after sublimate irrigations. Besides, the CHLORINE-WATER, which was always employed unmixed, exerted a certain hemostatic influence. As for its proneness to decompose, it is insignificant if the preparation be kept in dark, glass-stoppered bottles, and protected from sun-light and air.

This preparation was also used with very satisfactory results in purulent corneal affections, particularly *ulcus serpens* (as a wash, several times daily).

HYOSCINE AS A MENTAL ALTERATIVE.

In a communication to the *Journal of Mental Science*, Dr. LIONEL WEATHERLY speaks strongly in favor of HYOSCINE—previously described in this journal—in certain mental conditions, and wisely warns against mistaking it for hyoscyamine,—an alkaloid very different in character, from the clinical physician's point of view, at least. He believes strongly in the powers of HYOSCINE as a mental alterative, and considers it particularly useful in that form of disturbance of the mind which renders the patient violent and abusive, restless and domineering—a nuisance to every one about him. Under the administration of *repeated small doses* of HYOSCINE, such a patient becomes a changed person: violence and abusiveness give place to an amiable politeness; and the patient subsides into silence.

These are the cases in which the author finds HYOSCINE most useful, and in which he believes it to act as a true mental alterative. It is also recommended as a useful remedy in *delirium tremens*, and in other diseases in which *tremor* is a marked symptom,—such as disseminated sclerosis; it has the great advantage of being quite safe in most cases.

—It is not without reason that Dr. WEATHERLY warns against the indiscriminate use of HYOSCINE as a rapid and powerful *hypnotic*: however, there is no doubt in the author's mind that the drug in question finds its greatest—probably its most useful—application in the treatment of maniacal violence and noisiness, and that, at least in ordinary hospital work, it is a drug for emergencies.

CARBOLIC ACID lotions (4%) are highly lauded by Dr. J. HANCOCK in acute *articular rheumatism*. They are applied on flannel compresses, during the night, over the entire surface of the affected joint.

PRACTICAL HINTS

ON METHODS IN THERAPY, PHARMACY, ETC.

PNEUMONIA;—PRODUCTION OF IMMUNITY AGAINST, AND CURE OF.

Drs. G. AND F. KLEMPERER report (*Berliner Klinische Wochenschrift*) on a series of investigations made in regard to pneumonia for the purpose of determining in what manner immunity against the pneumococcus could be best produced, whether recovery from the disease rendered an animal immune, and whether pneumonia could be cured by the blood-serum of animals that had recovered from the disease. The important discovery made by BEHRING AND KITASATO in 1890, that blood-serum taken from animals that had been rendered immune to tetanus and to diphtheria could cure other animals affected with these diseases, led the way to the investigations of the Drs. KLEMPERER. The latter's experiments—which were confined to rabbits revealed that every nutrient medium in which the pneumococcus has been cultivated, will, if inoculated, render an animal immune against pneumonic septicemia, even after the cocci have been removed by filtration. The power of producing immunity is more speedily acquired, and is increased, if the infected nutrient medium (before or after removal of the cocci) is exposed to a temperature of $41-42^{\circ}\text{C}$ [$105.8-107.6^{\circ}\text{F}$] for two or three days, or of 60°C [140°F] for an hour or two. In every case, however, it was found necessary that some interval (varying from three to fourteen days) should elapse between the inoculation and the production of immunity. Hence it was too late to cure a diseased animal, or even to prevent the onset of an attack if the injection was given *simultaneously* with the outbreak of the disease. On the other hand, serum taken from animals enjoying immunity was found capable—especially when introduced directly into the circulation—of curing pneumonic septicemia. The serum was injected twenty-four hours after infection,

while the animals had a febrile temperature of $105-106.5^{\circ}\text{F}$ [$40.5-41.4^{\circ}\text{C}$]. Eight cubic centimetres [2 fl. drs.] were injected, with the result that the temperature gradually sank during the next twenty-four hours. In twelve successive cases, a successful result was obtained. This research therefore confirms, in regard to pneumonia in rabbits, what BEHRING AND KITASATO did for tetanus and diphtheria.

The Drs. KLEMPERER next studied the question how the blood-serum of an immune animal cures an attack of pneumonic septicemia, and discovered that when the pneumococcus is introduced into the body of an animal it generates a poisonous substance which can be isolated, and to which the name of "*pneumotoxin*" has been given. This pneumotoxin sets up a febrile condition which lasts several days, after which another substance is found to have been produced, called "*antipneumotoxin*," which is able to neutralize the pneumotoxin. The serum taken from an immune animal contains this antipneumotoxin, and it is by means of this substance that it cures an attack of pneumonic septicemia in other animals.

The relation of pneumonia as seen in rabbits with that met with in man was next investigated, and the conclusion arrived at that the disease in both cases is produced by the pneumococcus, but that the human body is much less susceptible to the latter than the rabbit is. Thus it was found that serum, taken from pneumonic patients after the crisis, could cure pneumonia in rabbits; moreover, pneumotoxin and antipneumotoxin were found to be present in human serum as well as in that taken from rabbits. The crisis of pneumonia—according to the Drs. KLEMPERER—takes place as soon as antipneumotoxin is produced in sufficient quantity to neutralize the pneumotoxin. Why immunity against further attacks

lasts so short a time in man is still uncertain, but perhaps relatively less antipneumotoxin is formed in man than in rabbits.

ANTIDOTES, ANTAGONISTS, AND PROPHYLACTICS.

CHLOROFORM TOXICITY COUNTERACTED BY NARCEINE.

LABORDE, in a paper read before the ACADEMIE DE MÉDECINE, at Paris, states that he discovered, by animal experiments, that NARCEINE is capable of preventing the vomiting and the digestive disturbances frequently resulting from internal employment of CHLOROFORM, as well as the possible serious consequences of a profound CHLOROFORM *narcosis*.

PICROTOXIN WITH PAR-ALDEHYD IN MORPHINE-POISONING.

Some time ago ARPAD BOKAI (*Orvosi Hetilap*) declared PICROTOXIN to be an eligible antagonist to morphine, and possibly also to chloral hydrate and chloroform, because, by its stimulation of the respiratory centre and of the vaso-constrictor centre in the medulla oblongata, it tends to prevent death from narcotics; and because, without risk, doses of it may be administered, of greater efficacy than the largest permissible atropine doses.

Recently Professor BOKAI and Dr. KOSSA (*Wien. Med. Presse*) have again taken up the study of morphine-antagonists, and by experiments on rabbits they succeeded in eliciting the following:

1.—The lethal effect of morphine cannot be prevented by either large or small doses of PICROTOXIN, because the latter would induce spasm of the respiratory muscles, which become exhausted in consequence.

2.—These spasms of the respiratory muscles can be combated, however, with PAR-ALDEHYD, and the animals saved.

3.—Animals poisoned with absolutely lethal doses of morphine can be saved by small doses of PICROTOXIN with the concomitant ingestion of PAR-ALDEHYD.

4.—The employment of PAR-ALDEHYD *alone*

is of no avail in morphine-poisoning.—In man the maximum dose of PICROTOXIN is held to be 0.006 gramme [$\frac{1}{10}$ grain] singly, and 0.02 gramme [$\frac{1}{3}$ grain] daily.—Of PAR-ALDEHYD the average *daily* dose is 3–6 grammes [45–90 minims].

RECENT HYPNOTICS;—THEIR INFLUENCE ON DIGESTION.

Observation of gastric disturbances that occasionally follow the administration of CHLORAL-AMIDE, PAR-ALDEHYD, UR-ETHANE, and SULPHONAL, has led Dr. J. GORDON (*The Pharm. Journal and Transactions*), of Aberdeen, to test the influence these compounds may exercise upon digestion. The method adopted was that of GRÜTZNER, and consisted in subjecting washed fresh blood-fibrin, stained with carmine, to the action of pepsin in the presence of the hypnotic,—the progress of the digestion being indicated by the liberation of color from the fibrin, and by its diminished bulk. Half a gramme [7.5 grains] of stained fibrin was placed in a test tube, together with 2 decigrammes [3 grains] of pepsin, 2 cubic centimetres [32 minims] of 2 % hydrochloric acid, and 15 cubic centimetres [$\frac{1}{2}$ fl. oz.] of water, and the hypnotic added.

The results of the experiments showed that when more of Chloral-amide than 0.2 gramme [3 grains] was added, it retarded the digestion of fibrin in the ratio of the quantity employed, but that less than 0.2 gramme exercised no perceptible influence. Similar results were obtained with Ur-ethane and Sulphonál, and none of the three retarded decomposition. On the other hand, Par-aldehyd, added in large quantities, considerably *accelerated* the digestion of fibrin, and generally the rate of acceleration was in ratio with the quantity used. Putrefaction also was prevented by large proportions of Par-aldehyd, and delayed by smaller proportions. So far, therefore, as inferences can be drawn from results obtained outside the organism, the diarrhea that sometimes follows the exhibition of Par-aldehyd is not referable to direct interference with digestion.

MAXIMUM DOSES FOR CHILDREN.
—ACCORDING TO V. ZIEMSEN'S "PHARM. CLINICA."—

These doses of the more important and powerfully active MEDICAMENTS, *ought not*, in the ordinary, *to be exceeded* for the respective ages stated below.

[For MAXIMUM ADULT DOSES of diverse Remedies, see MERCK'S BULLETIN, 1889; pp. 45-48.]

MEDICAMENT.	REMARKS.						12 Years.	8 Years.	5 Years.	3 Years.	1-2 Years.	Under 1 Year.
							Grainnes = { Grains or Minims. }	Grainnes = { Grains or Minims. }	Grainnes = { Grains or Minims. }	Grainnes = { Grains or Minims. }	Grainnes = { Grains or Minims. }	Grainnes = { Grains or Minims. }
ACID, TANNIC, (Tannin)							0.02	1/3	0.01	1/6	0.01	1/6
ANTIFEBRIN							0.25	4	0.15	2 1/4	0.05	3/4
ANTIPYRINE							1.0	15	0.6	9	0.2	3
APOMORPHINE Hydrochlorate							0.005	1 1/2	0.002	1 3/2	0.001	1/64
ATROPINE Sulphate							0.0005	1 1/2	0.0002	1 3/2	0.0001	1/64
CAMPHOR							0.05	3/4	0.03	1/2	0.02	1/3
CHLORAL Hydrate							1.0	15	0.6	9	0.3	4 1/2
COPPER, Sulphate							0.5	7 1/2	0.3	4 1/2	0.1	1 1/2
DIGITALIS, Leaves							0.5	7 1/2	0.3	4 1/2	0.1	1 1/2
DOVER'S Powder							0.05	3/4	0.01	1/6	0.003	1/20
IODOFORM												
IPECAC, Root												
IRON Lactate							0.1	1 1/2	0.03	1/2	0.01	1/6
" Oxide, saccharated, Ph. G. III							0.1	1 1/2	0.03	1/2	0.01	1/6
LEVANT WORMSEED							4.0	60	2.0	30	0.5	7 1/2
MERCURY Chloride, (Calomel)							0.05	3/4	0.03	1/2	0.01	1/6
" Iodide (Green)							0.02	1/3	0.006	1/10	0.003	1/20
MORPHINE Hydrochlorate							0.01	1/6	0.002	1/32	0.0005	1/120
" Sulphate							0.01	1/6	0.002	1/32	0.0005	1/120

MUSK	0.05	$\frac{3}{4}$	0.04	$\frac{2}{3}$	0.03	$\frac{1}{2}$	0.02	$\frac{1}{3}$	0.01	$\frac{1}{6}$	0.01	$\frac{1}{6}$
OIL, TURPENTINE.....	0.5	10	0.45	9	0.35	7	0.25	5	0.15	3	0.1	2
OINTMENT, BLUE (Mercurial), U. S. Ph.(*)											
OPIMUM	0.03	$\frac{1}{2}$	0.02	$\frac{1}{3}$	0.01	$\frac{1}{6}$	0.005	$\frac{1}{12}$	0.002	$\frac{1}{32}$	.....	.....
PHOSPHORUS.....	0.0005	$\frac{1}{120}$	0.0003	$\frac{1}{200}$	0.0001	$\frac{1}{640}$	0.0001	$\frac{1}{640}$	.....	.....	.....	.....
PILOCARPINE Hydrochlorate	0.01	$\frac{1}{6}$	0.005	$\frac{1}{12}$	0.003	$\frac{1}{20}$	0.001	$\frac{1}{64}$	0.0005	$\frac{1}{120}$	.....	.....
POMEGRANATE, Bark.....	{ For Hypodermic Injection : 0.002-0.005 } gramme [$\frac{1}{32}$ - $\frac{1}{16}$ grain.] }											
POTASSIUM Bromide.....	2.0	30	1.0	15	1.0	15	0.5	$7\frac{1}{2}$	0.3	$4\frac{3}{4}$	0.2	3
“ Chlorate.....	.....	.....	.....	.....	0.3	.....	0.2	3	0.1	$1\frac{1}{2}$	.....	.....
“ Iodide.....	0.3	$4\frac{1}{2}$	0.2	3	0.1	$1\frac{1}{2}$	0.06	1	0.03	$\frac{1}{2}$	0.01	$\frac{1}{6}$
QUININE Sulphate.....	1.0	15	0.8	12	0.6	9	0.5	$7\frac{1}{2}$	0.25	4	0.05	$\frac{3}{4}$
“ Tannate.....	1.0	15	0.8	12	0.6	9	0.25	4	0.05	$\frac{3}{4}$	0.02	$\frac{1}{3}$
SANTONIN.....	0.1	$1\frac{1}{2}$	0.05	$\frac{3}{4}$	0.03	$\frac{1}{2}$	0.02	$\frac{1}{3}$	0.01	$\frac{1}{6}$	.....	.....
SILVER Nitrate.....	0.015	$\frac{1}{4}$	0.01	$\frac{1}{6}$	0.006	$\frac{1}{10}$	0.005	$\frac{1}{12}$	0.002	$\frac{1}{32}$	0.001	$\frac{1}{64}$
SOLUTION: Potassium Arsenite.....	0.2	3	0.12	2	0.06	1	0.06	1	0.06	1	.....	.....
SYRUP: Iron Iodide, U. S. Ph.....	0.5	6	0.4	5	0.3	$3\frac{1}{2}$	0.25	3	0.12	$1\frac{1}{2}$	0.04	$\frac{1}{2}$
“ Soluble Saccharated Iron, N.F.	5.0	60	3.0	35	2.0	25	1.0	12	1.0	12	0.5	6
TINCTURE: Nux Vomica, U. S. Ph.	0.25	4	0.15	$2\frac{1}{2}$	0.15	$2\frac{1}{2}$	0.09	$1\frac{1}{2}$	0.06	1	0.03	$\frac{1}{3}$
“ Opium, camphorated, U.S.Ph.	0.75	$12\frac{1}{2}$	0.6	10	0.5	8	0.3	5	0.25	4	0.15	$2\frac{1}{2}$
“ “ simple, U. S. Ph.....	0.3	5	0.3	5	0.25	4	0.18	3	0.12	2	0.03- 0.06	$\frac{1}{2}$ -1
“ Squill, U. S. Ph.	0.9	14	0.75	12	0.45	$7\frac{1}{2}$	0.3	5	0.15	$2\frac{1}{2}$	0.04	$\frac{2}{3}$
WATER: Bitter Almond, Ph. G. III.....	{ As Expectorant: 1 minim [0.06 gm.] } for each year of age.											
WINE of Antimony	By the fl. dram [3.75 gm.] till it acts..											
“ Colchicum-seed, U. S. Ph.....	0.75	12	0.35	6	0.25	4	0.15	$2\frac{1}{2}$	0.08	$1\frac{1}{4}$	.....	.....
“ Ipecac	By the fl. dram [3.75 gm.] till it acts..											

(*) EXPLANATORY NOTE.—MINIM EQUIVALENTS have been modified according to the specific gravities of the respective fluids.

GATHERED FORMULAS.

1.—Treatment of Asthma.—[HUCHARD—*Revue Générale de Clinique et de Thérapeutique.*]

—MIXTURE.—

Potassium Iodide }
 Lobelia Tincture. } of each, 2 grammes [$\frac{1}{2}$ dram].
 Senega Tincture. }
 Opium Extract.....0.02 gramme [$\frac{1}{2}$ grain].
 Distilled Water.....180 grammes [6 fl. oz.].

Tablespoonful mornings and evenings in a wineglassful of water.

2.—Iodoform in Acute Gonorrhea.—[P. THIERY—*La Semaine Médicale.*]

—INJECTION.—

Iodoform.....10 grammes [$2\frac{1}{2}$ drs.].
 Sweet-almond Oil.....60 “ [2 fl. oz.].
 Vanillin, or Cumarin.....enough to flavor.

For urethral injection!

(8 grammes [2 fl. drs.] are injected 3 times a day,—the patient in dorsal decubitus,—and retained 10–20 minutes. The first injection should be made by the physician.—According to THIERY, pain disappears after the first injection, and cure results in 12 days.)

3, 4 and 5.—Treatment of Pruritus Senilis.

—[BESNIER—*Union Médicale.*]

—LOTION.—

Carbolic Acid.....4 grammes [1 dram].
 Aromatic Vinegar.....200 “ [$6\frac{1}{2}$ fl. oz.].

Add two tablespoonfuls to a litre [about a quart] of water heated to 40° C [104 F], and wash the body herewith at bed-time. After drying, dust with:

—DUSTING-POWDER.—

Bismuth Salicylate.....20 grammes [5 drams].
 Powdered Starch.....90 “ [3 ounces].

or:

Powdered Salicylic Acid.....20 grammes [5 drams].
 Powdered Starch.....180 “ [6 ounces].

6.—Anti-Emetic in Infantile Gastro-Intestinal Catarrh.—[N. MANDESTAMM—

La Semaine Médicale.]

—MIXTURE.—

Musk Tincture.....20 drops.
 Red Wine.....15 grammes [4 fl. drs.].
 Syrup.....15 “ [3 “ “].
 Salep Infusion.....60 “ [2 “ oz.].

Small teaspoonful every two hours.

7.—Styrone as a Deodorant in Ulcerated Cancer.

—[*Nouveaux Remèdes.*]

—SPRAY.—

Styrone.....4 grammes [1 dram].
 Glycerin.....30 “ [6 fl. drs.].
 Distilled Water.....30 “ [1 fl. oz.].
 Externally!

8.—Agaricic Acid in Phthisical Night-Sweats.

—PILLS.—

Agaricic Acid.....0.2 gramme [3 grains].
 Glycyrrhiza Extract }
 “ Powder } of each, a sufficient quantity.

Divide into 10 pills!—Two pills 2 hours before bed-time.

9.—Strychnine in Dipsomania.—[JERGOLSKI—

Deutsche Med. Wochenschrift.]

—SOLUTION.—

Strychnine Nitrate.....0.06 gramme [1 grain].
 Distilled Water.....15 grammes [$\frac{1}{2}$ fl. oz.].

For subcutaneous injection!—Daily 1–2 injections, using at first 0.5 gramme [8 minims], later 0.11 0.25 gramme [4 minims].

(According to the author, 10–16 injections suffice for a cure. Sodium bromide may be administered at the same time.)

CHLOROFORM-ANESTHETIZATION has been modified by Dr. O. ZUCKERKANDL, of Prof. VON DITTEL's surgical clinic, as follows: Instead of pouring the chloroform on the mask in large quantities,—as is customary,—it is dropped slowly and steadily on the mask from the beginning up to the appearance of the narcosis. The usual disturbances are wanting in this procedure. There is 0.6 gramme [8 minims] of chloroform used on the average in a minute; whereas 1 gramme [15 minims] is used per minute by the customary pouring method.

CHROMIC ACID is employed by PAGORZIELSKI to arrest *epistaxis*. A crystal of the acid is applied to the bleeding spot by means of a platinum wire.

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ICHTHYOL.

GENERAL DESCRIPTION.

[Based on information furnished by the ICHTHYOL COMPANY, Hamburg.]

Its Origin.

From a Mineral Oil.

ICHTHYOL is prepared from a peculiar mineral oil obtained by distillation from certain fossil deposits found in the Tyrol, supposed to be derived principally from fish—whence its name.

Physical and Chemical Properties.

Thick Liquid, Soluble; Stable Sulphur-compound.

ICHTHYOL is a clear, thick, brownish liquid, of a smoky, bituminous odor and taste. It is soluble in Water, in a mixture of Alcohol and Ether, in Oils, Glycerin, and Fats; only partly so in pure Alcohol or pure Ether.

ICHTHYOL may be combined with preparations of Lead and Mercury without formation of Sulphides, although it contains about 15% of easily assimilable Sulphur.

N. B.—The *odor* of ICHTHYOL can be *easily overcome* by the addition of Oil of Citronella or Vanillin.

Various Ichthyol Salts.

Ammonium, Sodium, Lithium, Zinc.

The form of ICHTHYOL most usually employed is the SULPHO-ICHTHYOLATE OF AMMONIUM. Besides the Ammonium salt of Sulpho-ichthyolic Acid, the analogous *Sodium*, *Lithium*, and *Zinc* salts are also made; the Ammonium salt, however, is generally preferred in Therapy, on account of its less viscid consistence, and has been so prevailingly prescribed by medical men, that, in speaking of ICHTHYOL without any further designation, the *Ammonium* Sulpho-ichthyolate (so-called "ICHTHYOL-AMMONIUM") is now *always understood*.

Its Innocuousness.

Prof. BAUMANN and Dr. SCHOTTEN, of Berlin, made many experiments on animals with ICHTHYOL, the result proving that it is *perfectly harmless*, and, consequently, may be used both internally and externally without the least danger.

CONDENSED ORIGINAL REPORTS

BY MEDICAL MEN

ON THE

THERAPEUTIC USES OF ICHTHYOL.

1.—THERAPY—EXTERNAL.

A Dermic Remedy.

The uses of ICHTHYOL are manifold, and its beneficial effects, especially in certain hitherto intractable forms of disease, far *superior* to anything previously employed to combat them. It is a capital remedy in **Diseases of the Skin**, and its applicability extends over the whole range of them, from simple Roseola and Eczema up to Psoriasis and Leprosy. I prescribe it in ointments or lotions (℥ xxv-xc : ʒ i), at the same time giving it internally in doses of 3-15 pills (1½ min. each), or a corresponding number of capsules (3¾ min. each). There is not the least discomfort accompanying its internal administration; on the contrary, the appetite is stimulated, and the patients *gain in weight*.

With regard to the external use of ICHTHYOL, it should be observed that it coats the skin and makes it sticky, and that, to insure the greatest possible efficacy, the parts must be washed every night with warm water and soap, and, if the area of the disease is not too extended, wrapped in ICHTHYOL Wadding.

Some months ago I attended two severe cases of *Pruritus pudendorum*. Alteratives internally, and local applications of strong Hydrocyanic-acid ointments with Morphine, and finally with Cocaine, gave but temporary relief. I gave ICHTHYOL internally in large doses, had the parts well anointed with ICHTHYOL ointment (℥ xxv : ʒ i), and ordered a warm hip-bath to be taken every night at bed-time. Under this treatment, steady improvement took place.

In a case of *Prurigo*, in which the itching was almost unbearable, and seriously impaired health by preventing sleep, ICHTHYOL *promptly* caused the itching and eruption to disappear; other methods of treatment, previously resorted to, had proved useless.

In *Burns* and *Scalds*, ICHTHYOL ointment (℥ XLV : ʒ i), with a little Pulvis Opii added to it, is *superior* to any other remedy I know-of. The wounds require dressing far less frequently, whilst the new skin grows with surprising rapidity.

Where the skin and subcutaneous cellular tissue are both congested, the striking effects of ICHTHYOL, locally applied, are still more manifest. This is especially the case in *Erysipelas*. The disease at once becomes stationary, the swelling begins very soon to subside, and the skin becomes wrinkled. ICHTHYOL internally, or, if necessary, some other medication, must of course accompany the local treatment.

That in *Traumatic Erysipelas* and in malignant *Phlegmonous Cellulitis*, the action of the drug is equally beneficial in arresting the progress of the disease and rendering the absorbed poison apparently innocuous, will probably provoke an incredulous smile with most readers, yet the testimony of my countrymen at home, and my own experience, place this gratifying fact beyond all doubt.

—ICHTHYOL.—

Therapy—External.

Undiluted, or in ointments or lotions (3 II–IV: 3 I), ICHTHYOL is an *excellent* remedy in *Carbuncles*.

ICHTHYOL prevents and cures *inflammatory swellings* arising from Contusions, Sprains, Fractures, and Dislocations.

In a case of enormous varicosity of both legs, in which one member was greatly swollen, extremely painful, thickly covered with Eczema, and had two large *Ulcers* over the tibia, the application of leeches, poultices, and warm baths failed to give relief. I then applied an ICHTHYOL lotion (M LXX: 3 I), with a truly *marvelous* effect. After 24 hours, the pain was almost entirely gone, the swelling greatly reduced, and the angry bluish color of the Eczema had changed to a faint red. On the third day of this treatment, the patient was able to walk about. At the end of a month, the Eczema was *completely cured*, the ulcers had healed, and the leg was sounder than it had been for years.—A. MUELLER. [Australasian Medical Gazette; Sydney, 1890; No. 108.]

Analgetic and Antineuralgic.

ICHTHYOL has been recommended by many authorities, yet there are a good many practitioners who have never used it. The many-sided action of ICHTHYOL in rheumatic and infectious diseases, in cutaneous diseases, affections of the throat, disorders of the stomach, erysipelas, etc., without sufficient explanation, was regarded as suspicious.

My experience, however, confirmed the great therapeutic value of ICHTHYOL, and I therefore will no longer delay in doing it justice. I refer to the external application of the remedy only.

I am well satisfied with ICHTHYOL in the treatment of *Articular Rheumatism*. Both the *pain and swelling abated* on painting the affected parts with this remedy, even in cases which withstood Salicylic Acid, Antipyrine, Antifebrin, Phenacetin, Quinine, etc.

I have had the same good result in cases of *Hemoptysis* with intense cough and pain in the chest; no pleuritis. After *two* frictions, the pain was relieved.

Incipient *Whitlow* (before suppuration) is *always* cured by the application of ICHTHYOL. In the case of a woman complaining of continual painful ulceration of the last phalanx and base of the nail of the index finger, I applied ICHTHYOL, and the condition was improved in a short time.

I noticed the same good result in *Neuralgia*; even violent pain of the neck and shoulder extending to the arms was soon relieved by the application of ICHTHYOL.

The efficacy of ICHTHYOL cannot be doubted, for in my cases the pain had been suffered for a long time, and other remedies had proved unsuccessful. This remedy exerted a beneficial effect *at once*, and its influence was *permanent* on continued application.

I generally used *pure* ICHTHYOL as a paint; sufficient French chalk was strewn on to form a good coating, and the whole was dressed with ordinary wadding. The application was renewed every 24 hours.—LEHMANN.

[Der Aertzliche Praktiker; Berlin, 1889; No. 24.]

Analgetic and Antiphlogistic.

In a case of *Mastitis*, with the abscess on the point of bursting, I ordered the affected part to be rubbed with a mixture of equal parts of ICHTHYOL and Water, three times a day. This procedure not only relieved the intense pain, but softened the hardness and visibly increased

Therapy—External.

—ICHTHYOL.—

and hastened suppuration, terminating the disease sooner than the customary 2% solution of Carbolic Acid. The painful *Lymphangitis* of the arm disappeared after two inunctions with undiluted ICHTHYOL.

In another case of Mastitis I diagnosed pus also, made an incision and liberated about $\frac{1}{4}$ litre [$\frac{1}{2}$ pint] of pus. No drainage of the wound, but immediate friction of the whole mamma—except the wound itself—with undiluted ICHTHYOL. The next day I removed again 300 grammes [about 10 fl. oz.] of pus thinner than the first, and ordered three more frictions. On the third day I found the wound closed and the mamma free from pain. By further application of ICHTHYOL, the hardness also disappeared.

In still another case of this kind I saw the patient for the first time on the third day after the appearance of pain, and found the nipple sore, the mamma inflamed, enormously swollen and very painful to the least touch, but could not discover any fluctuation. I rubbed the breast daily with ICHTHYOL, and, to my great satisfaction, succeeded in reducing it to its normal state within three days.

ICHTHYOL was also very *efficacious* in the treatment of simple *Mastodynia*; I prefer it to the mixture of equal parts of Soap Plaster and Belladonna Plaster.—LORENZ.

[*Deutsche Militärärztliche Zeitschrift*: 1885; No. 11.]

Anodyne and Antipruritic.

In the mild forms of painful *Muscular* and *Articular Rheumatism*, the 10 and 30% alcohol-etheral solutions of ICHTHYOL proved to be valuable remedies; they at present belong to our regular and most favorite prescriptions for these affections.

Painting with solutions of ICHTHYOL (M XLV : $\frac{3}{4}$ 1) is of undoubted advantage in *Pruritus*, local as well as general: in *Pruritus senilis*, *hyemalis*, and in that of *Diabetes*, *Myelitis*, and neuropathic individuals.

At all events, the ICHTHYOL preparations are very decidedly *efficacious* in a vast number of cases, besides being *convenient* of application and *without untoward effect*; they may well be greeted as valuable additions to our *Materia medica*.—Prof. A. EULENBERG.

[*Letter to the ICHTHYOL COMPANY*; June 10th, 1886.]

Anodyne, Antiseptic, and Astringent.

I have used ICHTHYOL since 1883, in solutions (M XLV-3 IV : $\frac{3}{4}$ 1), in *Rheumatism*, *Lumbago*, *Sciatica*, *Tic Douloureux*, *Headache*, etc., and *always found its effect more gratifying than that of any other well-established remedy*. Of course it is not a panacea, but at all events an *efficacious* palliative.

According to my own experience and that of my colleagues, ICHTHYOL may be highly recommended in the treatment of *Rheumatism*, *Lumbago*, *Sciatica*, *Gout*, *Neuralgia*, *Contusions*, *Wounds*, *Burns*, *Pityriasis*, *Seborrhœa*, *Ichthyosis*, *Eczema*, *Lichen*, *Prurigo*, *Pruritis*, *Herpes*, *Acne*, *Acne rosacea*, *Psoriasis*, *Erysipelas*, *Furunculosis*, *Lymphangitis*, *Paronychia*, *Lepra*, and certain *Exanthemata*.

It being proved that ICHTHYOL *can be used internally and externally without the least danger*, we can, by its continual use, introduce into the system a larger quantity of Sulphur than can be conveyed in any other form. Besides, ICHTHYOL is an **Antiseptic**, and exercises an **Astringent** effect on the vessels.

All these advantages are of great importance to the medical art, and consequently we ought to regard ICHTHYOL as *a most valuable remedy*.—Prof. ERNST SCHWENINGER.

[*Report of the CHARITÉ HOSPITAL*; Berlin, June, 1886.]

—ICHTHYOL.—

Therapy—External.

Antineuralgic and Anodyne.

I had occasion to employ AMMONIUM SULPHO-ICHTHYOLATE (*Ichthyol*) in a case of *Sciatica*, and applied flannel instead of wadding after applying the remedy. The success after the third rubbing was so *surprising*, that I employed it subsequently in various *Rheumatic Affections*, and with complete success. At the start, the ethereal solution of ICHTHYOL failed to exert the desired effect, but it was in a very old case of *Tic douloureux* which had not yielded to any remedy previously employed. Nevertheless, this ICHTHYOL solution *moderated*, but did not entirely dispel the pain; still I clung to it in this case, because all other remedies had proved *entirely* inert.

In *Migraine* and *Nervous Headaches* in consequence of Colds, I have employed the solution invariably with the best success.

I find AMMONIUM SULPHO-ICHTHYOLATE, as well as ICHTHYOL Soap, *very efficacious* in all *chronic eruptions* of the skin; I employ these preparations in all such conditions with surprising success.—EDELBERG.

[By letter to the ICHTHYOL COMPANY; Hamburg, April 20th, 1886.]

Antiphlogistic and Anodyne.

I am pleased to be able to testify that your preparations have done brilliantly in *all* the cases in which I had occasion to employ them. The ICHTHYOL-Ammonium effected a perfect cure in three weeks, in a much neglected case of *Traumatic Arthritis* of the knee, with considerable effusion and painful flexion of the leg. The patient, a farmer, came to me with a joyful countenance, to tell me personally that he was again able to work his fields.

Also in *Panaritias*, even those of long standing, and in *Burns* of a mild degree, this preparation promptly afforded relief and effected an unexpected, rapid cure.

The ethereal liniment has rendered good services in *Rheumatism* and in *Trifacial Neuralgia*,—in the latter of which ICHTHYOL Wadding sufficed too, in part.

ICHTHYOL Plaster should not be wanting in the doctor's equipment of surgical dressings.

In the future, I shall also employ ICHTHYOL *internally*,—as yet, I have had no occasion to do so; but I sincerely believe that this remedy will play an important part in medicine.—GORETZKI.

[Letter to the ICHTHYOL COMPANY; April 20th, 1886.]

Antipruritic and Anodyne.

ICHTHYOL, recommended by Dr. UNNA as a most efficacious remedy in Rheumatism and certain diseases of the skin, has fully justified his encomium, not only in such disorders, but also in other affections. I, moreover, may mention that ICHTHYOL is now largely prescribed internally, and is much approved-of by the patients who have taken it.

As to later results, I received from Dr. KLONK, Naval Surgeon, the following report:

"I have obtained excellent results in *Chilblains*,—from which sailors frequently suffer at sea,—by using a liniment composed of equal parts of ICHTHYOL and Oil of Turpentine. The affected parts were first washed with luke-warm water and soap; the liniment was then applied, and finally the affected members were wrapped in cotton-wool.

"ICHTHYOL mixed with Chloroform in the proportion of 3:1, has proved very useful in *Odontalgia*, caused by decayed teeth. A small piece of cotton dipped into it and applied to the cavity, was often sufficient to remove the pain *at once*,

Therapy—External.

—ICHTHYOL.—

“Equally good results have been obtained from the use of ICHTHYOL in the treatment of *Burns* of the first and second degree. The *pain disappeared quickly*, and if applied at once, *no blisters* appeared.”—RABOW.

[*Deutsche Medizinische Wochenschrift* ; 1886 ; No. 9.]

Antirheumatic and Analgetic.

An astonishingly rapid cure of a case of Chronic **Rheumatism** induces me to publish my observations. About $2\frac{1}{2}$ years ago, the patient had a severe attack of Acute Articular Rheumatism which became chronic. Several of the joints, particularly those of the lower extremities, remained swollen and painful, compelling the patient to remain in a sitting posture.

I determined to use ICHTHYOL (1 part ICHTHYOL, 4 parts Petrolatum), the more so as all other remedies so far had proved unsuccessful. First the affected parts were bathed with soap and tepid water, and then the ICHTHYOL ointment was rubbed in. After the *first* inunction, *the almost unbearable pain in the joints suddenly ceased, and never returned*, and the next morning the patient was *able to walk-about* in her room. The swelling gradually diminished, and in 8 days the patient was able to walk several hours each day.

I also used ICHTHYOL in a case of *inflammation caused by infection*. The patient had cut her left forefinger while larding a loin of venison which had been kept some time, and septic matter most likely got into the blood. The wound healed up in a short time, but a few days later, the finger began to swell and was very painful, and although cold water was applied freely, the swelling spread to the palm of the hand. This was accompanied by fever with alternate chills and general uneasiness. On the fifth day, the skin was much inflamed; the temperature very high and a pressure on any part of the hand caused acute pain; no fluctuation. I applied ice-bags to both sides of the hand; and put the arm in a sling. On the eighth day, the symptoms had increased to an alarming degree and the inflammation extended to the wrist. I placed the hand in a basin filled with lumps of ice, but without effect. At the time it occurred to me to use ICHTHYOL, and the same evening I rubbed the hand with ICHTHYOL ointment (3 II : $\frac{3}{4}$ I), and placed a piece of linen covered with the same ointment on both the palm and back of the hand; over this I put several layers of cotton, and laid the hand on a splint. The next morning, to my great satisfaction, I found it much better. *The pain had subsided considerably a few hours after the rubbing, and the patient had slept the greater part of the night*, which she had not previously been able to do—although large doses of Morphine had been administered. I continued the same treatment for the next four days, and, by that time, the painful symptoms had entirely subsided.

The **Anodyne** property of ICHTHYOL induced me, finally, to use the remedy in *Contusion of the Ankle*. After shampooing the part with ICHTHYOL ointment, I dressed it with cotton moistened with ICHTHYOL, and *in a few hours the intense pain had disappeared*; two days later, the patient had entirely recovered the use of the foot.

The therapeutic powers of ICHTHYOL depend not only on the Sulphur it contains, but also on the great proportion of Oxygen combined with it, thereby producing an invigorating and antiseptic influence throughout the whole system.—ACKERMANN.

[*Correspondenzblätter des Allgemeinen Aerztlichen Vereins*; Thüringen, 1885 ; No. 8.]

—ICHTHYOL.—

Therapy—External.

As a Dermatic.

Perhaps there are no remedies to which more attention has been called of late than ICHTHYOL and Resorcin, largely through the instrumentality of Dr. UNNA, of Hamburg, and time sufficient has now elapsed since their first introduction to allow of judgment regarding their true merits. They are placed by UNNA as reducing agents, drawing Oxygen from the tissues, and altering the corneous layer of the skin. They are by no means indifferent substances, but while capable of doing good when properly used, they are irritating in many conditions.

ICHTHYOL should always be used weak at first, the strength being increased according to the effect produced; 2% in Water or ointment (℥ x: ʒ i), is strong enough to begin with; rarely will more than 5% (℥ xxv: ʒ i) be well borne, at any rate on American skins. As a lotion (℥ x-xv: ʒ i Aquae), it certainly often exercises a remarkable effect on *Ulcers* of the leg, they being kept wet with it all the time, the dressing being covered with a thickness of woolen blanket (but not rubber or oil-silk), to prevent too rapid evaporation. It is sometimes well at night to substitute an ointment of ICHTHYOL (℥ x-xv: ʒ i) with a little Zinc Oxide. In certain moist *Eczemas* about the folds of the body, a light bathing with a weak ICHTHYOL lotion (℥ x: ʒ i), followed by a Calamine and Zinc lotion, will give much better results than the latter alone. In certain cases in *Eczema* in infants, the effect produced by a thorough and continuous use of a Zinc ointment containing 20 minims of ICHTHYOL and 15 or 20 grains of Salicylic Acid to the ounce, is certainly *remarkable*, and undoubtedly much greater than from either the Zinc ointment alone, or when combined only with the Salicylic Acid.

Time does not permit of a fuller consideration of ICHTHYOL in this place, but enough has been said to show that it is an agent of some importance, capable of doing harm when used too strong, and of moderate value in allaying acute erythematous conditions of the skin.—L. DUNCAN BULKLEY.

[*The Journal of the American Medical Association*; Chicago, 1889; No. 10.]

As a Dermic Remedy.

I have used ICHTHYOL in over 100 cases of **Diseases of the Skin**, and without claiming for it any specific effect, I may say that *I owe some of my best results to it*, and that I very seldom was disappointed by the same. I applied it in the form of ointments (℥ xv-cl: ʒ i), to which was added either Salicylic Acid, White Precipitate, Resorcin, Naphthol, or Soft Soap,—according to the requirements of the case. The rather strong and offensive smell of ICHTHYOL can be easily overcome by the addition of Oil of Citronella or Vanillin. The slight brownish discoloration of the skin disappeared quickly; no other inconvenience was observed from its external application.

For many cases, particularly *Sycosis* and *Acne rosacea*, I found ICHTHYOL Soap very convenient. This may be used either like ordinary toilet soap, or the foam of it may be allowed to remain on the skin for a short or a long while, according to the effect desired.

It is as yet rather difficult to determine in what way ICHTHYOL, taken internally, affects the skin itself. Clinical evidence makes it highly probable that it has a contracting effect upon enlarged blood-vessels,—as can be seen in various cases of vasomotor neuroses.

The effect of ICHTHYOL, when used externally, can be inferred from its chief quality,—that is, to draw Oxygen from the tissues. Its regenerative power on one hand

Therapy—External.

—ICHTHYOL.—

when used in mild form, and its resolving action on the other when used in full strength, can be easily explained by its contracting influence upon the blood-vessels.

Unlike Arsenic, Antimony, etc., ICHTHYOL *never molests even the most delicate stomach* when given in doses up to 15 minims *per diem*; in fact, my patients never felt any bad effect whatever from its use.

I usually prescribe it in the form of capsules, to be taken after meals, or in sugar-coated pills, each containing 1½ minims of ICHTHYOL.—JOSEPH ZEISLER.

[*Chicago Medical Journal and Examiner*; 1886; December.]

As a Local Anodyne.

There are already a great many favorable reports published on the use of ICHTHYOL in skin diseases and in rheumatic affections, but nevertheless I think it worth while to point out the fact that I have repeatedly observed the most violent pains of *Gout*, which had lasted for 3 or 4 hours uninterruptedly, to disappear entirely and not return for weeks, often even during the first application of an ICHTHYOL ointment.

In a case of painful *Tumor albus genu*, with pronounced parasynovitis, the knee very hot and hyperemic, and the pain keeping the patient awake all night, I ordered painting with ICHTHYOL ointment and dressing with 10% Salicylic wadding, after all the customary remedies had been tried unsuccessfully.

The following day everybody was surprised to see that the treatment had proved *efficacious*. The patient had *no pain*, and had slept the whole night without using any narcotic. The knee itself looked better.

On further application of ICHTHYOL, the patient gradually improved, and never felt the pain again.—Prof. VON NUSSBAUM.

[*Therapeutische Monatshefte*; Berlin, January, 1888.]

As an Analgetic.

I have used ICHTHYOL largely in the "Nerven-Poliklinik," of which I am the chief physician, and can say that I am, on the whole, satisfied with the results obtained. The spray of 10–30% alcohol-etheral solutions of ICHTHYOL was of great efficacy in *Muscular* and *Articular Rheumatism*, if not too severe and inveterate, and has become an established remedy with us. In *Sciatica* and *Lumbago*, likewise, I have frequently seen most prompt and surprising effects.—Prof. A. EULENBURG.

[*Letter to the ICHTHYOL COMPANY*; June 10th, 1886.]

Cutaneous Protective and Desiccant.

ICHTHYOL acts in three ways: 1.)—As a **Protective**,—that is to say, when a mixture of ICHTHYOL with Lanolin is employed, it forms a filter, and so protects the skin from air, dust, or any minute particles of irritating matter floating in the atmosphere.

2.)—As a **Reliever of Congestion**.—When applied to the healthy skin, its effects are not apparent; but where *congestion* exists, it acts *promptly* by causing contraction of the arterioles and so diminishing the vascularity of the surrounding tissues.

3.)—As a **Desiccant**,—subduing the vascularity of congested skin; the outward flow of serum is also reduced, and the part becomes drier and healthy. These three actions are the essential points in the treatment of diseases of the skin.

I have used ICHTHYOL in the following cases with *marked success*:

Simple Erythematous Eczema.—In this disease, I have found ICHTHYOL a *remedy superior* to any other. If the hands or face are the affected parts, they should be

—ICHTHYOL.—

Therapy—External.

washed as seldom as possible, and then only with warm, soft water, containing a little soft oatmeal or Glycerin. Common soaps should be avoided: if any soap is used at all, such a one as that recommended by UNNA should be used; it is an over-fatty basis soap, without excess of alkali, and so avoids the drying effect on the skin which other soaps have. After washing, the parts should be carefully dried with a soft towel, and, in the case of the hands, they should be then rubbed with a little Glycerin solution (3j to ʒj Distilled Water).

I usually apply ICHTHYOL in the form of a solution, varying in strength as regards the position and the stage of the disease. In the above-mentioned simple Erythema, a solution of 3j to ʒj of Distilled Water is a proper strength to use, and should be painted-on with a camel's hair brush once every four hours. The part may be washed gently in a little warm water, and carefully dried before each application. If the itching is very severe; the solution may be applied oftener for the first few hours,—say once in every two hours for three applications. The sooner the application is made after the “tingling itchiness” commences, the better; it will very soon allay the itching; which is a very important factor in the treatment. I have in two mild cases, after painting-on the ICHTHYOL solution, applied a little cotton wool and Collodion with good results.

Scaly Dry Eczema.—In this chronic scurfy condition I proceed in the same manner as above, but I think an ointment is preferable in this stage of Eczema, as it softens the epithelium better; such as 3j of ICHTHYOL to ʒj of Vaseline, or with a little Lanolin added.

“Weeping” Eczema.—If the ICHTHYOL solution is applied in the early stage of the “weeping,” before there is much raw surface formed, it will control any further exudation; but if there is much tender surface, it is better to apply the ointment for the first twenty-four hours or so, as then the solution causes some smarting and perhaps pain. The best way to apply the solution in this case is to first gently dry the surface, and then paint it on,—repeating in three or four hours if the part is not already dried.

Simple Erysipelas.—If caught in the early stage, this is *the best external application I know-of*: it allays the burning sensations, and either aborts or limits the attack. The solution (3j to ʒj) should be painted-on every four hours, so as to form a complete protective layer over the part. I have used an ointment in some cases, but prefer the solution, as it dries quickly.

Urticaria-like Eruptions.—To be of any good, this remedy must be applied early,—before many watery blebs are formed; each area should be painted with the solution during the short congestive stage when the slight itching begins.

Furunculosis.—Here I apply a strong solution of ICHTHYOL (3j ICHTHYOL to ʒss Distilled Water) once every two hours for three or four applications, and then once every four hours: it always reduces the base of the boil in size, and often aborts it altogether if applied early. With this external treatment, I give Sulphide of Calcium in quarter-grain doses every two or three hours, for twelve hours, and then three or four times a day.

In most cases of Eczema I prescribe Cascara Sagrada as a laxative, as it stimulates the liver, and helps to eliminate any excess of Uric Acid—which I believe to usually co-exist with, or to be the cause of many such troubles.—J. R. McLEAN.

[*British Medical Journal*, March 9th, 1889.]

Therapy—External.

—ICHTHYOL.—

Ichthyol Varnishes.**Removable from the Skin.**

For some time past, UNNA has striven to produce a preparation of ICHTHYOL which shall lack all of the few drawbacks of the preparations of this excellent medicinal agent, thus far extant. As is well known, ICHTHYOL-COLLODION, when applied to the skin, cannot be washed off before the lapse of a few days without causing some—however little—irritation. On the other hand, ICHTHYOL and its solutions are hygroscopic.

UNNA has succeeded in producing two **Varnishes** which can be *easily washed off* with water, and are *non-hygroscopic*,—a *plain* (VERNISIUM ICHTHYOLI) and a *carbolyzed* (VERNISIUM ICHTHYOLI CARBOLISATUM). The former is composed of ICHTHYOL 40 parts, Starch 40 parts, Concentrated Solution of Albumin (prepared at a moderate temperature) 1–1½ parts, and Water a sufficient quantity to make 100 parts. The Starch is uniformly moistened with the Water; the ICHTHYOL is then carefully triturated with it; finally the Solution of Albumin is added.

CARBOLIZED ICHTHYOL VARNISH is composed of ICHTHYOL 25 parts, Carbolic Acid 2½ parts, Starch 50 parts, and Water 22½ parts. The ICHTHYOL and Carbolic Acid are dissolved in the water by the aid of gentle heat; the Starch is then added *gradually*, and thoroughly incorporated.

Both VARNISHES dry on the skin *within two minutes*. They are consequently admirably adapted for *nocturnal application* in Ulerythema centrifugum, in Acne in patients with sensitive skins, in Rosacea seborrhoica, in Rosacea simplex, etc. They can be *easily washed off* the next morning with plain water.

[Monatshefte für Praktische Dermatologie; Vol. XII, No. 2.]

In Cutaneous Diseases.

ICHTHYOL has its most extended use in all forms of *Rosacea*. It exactly fills a long-standing gap in our stock of remedies, and in its manifold capacity for use in this complaint, is as yet *unequaled by any other remedy*. It is of value here through its contracting influence on the blood-vessels.

We can, at least from a practical point of view, distinguish two forms of *Rosacea*, the first of which tends toward common Eczema and Erythema, the second toward Acne.

The first form presents generally a bright-red arterial congestion of variable intensity, depending on the irritants acting upon it,—among which changes of temperature play the most important *rôle*. The thin epidermis is either smooth or slightly scaly, exfoliating in thin lamellae, and almost always destitute of comedones and acne papules.

The other,—as far as I see it,—more usual form presents, typically stamped, the picture of a hard, knobby Acne on a dusky, bluish-red, swollen background. The epidermis is thick and raised in irregular lumps. The skin is not at all inclined to Eczema, and its redness is venous.

It is clear from what has been said that ICHTHYOL can only be given in the *latter* form with a free hand. In these cases, used in strong doses, it will display just the right effect, since the action is accomplished only slowly through the thick epidermis. In those forms which approach Eczema, the same dose would injure the defective epidermis and, in the end, *produce* Eczema. In such cases we must, therefore, employ *weak* ointments or pastes, or altogether give up the external use of ICHTHYOL. These are the cases which are healed alone by the internal use of this remedy, and washing with hot water and ICHTHYOL Soap.

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Therapy—External.

In the *eczematous* form of Rosacea, frequent bathing with hot water and ICHTHYOL Soap, or the application of a paste composed of 1 part of ICHTHYOL and 5 parts of Dextrin at bed-time, combined with the internal use of ICHTHYOL in moderate doses two or three times daily, usually suffices for a cure.

In the *acne-like* form I frequently employed gentle scraping of the pustular vesicles and pustular papules, besides the use of the ICHTHYOL paste and bathing with hot water and ICHTHYOL Soap; the internal treatment was continued without interruption.

What I have just said about the action of ICHTHYOL in the acne-like form of Rosacea holds good, of course, in just as high degree for *Acne* itself. The chief external remedy up to the present time was Sulphur, which, however, *irritates the eyes* of some patients so much that its use in every form must be suspended. No such idiosyncrasy exists with ICHTHYOL.

Moreover, we often wish to use, in connection with the Sulphur-cure, a preparation of Lead or Mercury, and we are then put in an unpleasant position, since, by this means, we call forth a transient discoloration due to the separation of a dark Sulphide. This contra-indication also does not exist with ICHTHYOL.

The second chief remedy in Acne,—Corrosive Sublimate,—agrees specially well with ICHTHYOL, and I am accustomed to begin the treatment of bad cases of Acne from the very outset with both remedies, using ICHTHYOL at night, and Corrosive Sublimate by day. Moreover, the mechanical treatment, so necessary in Acne, can be combined excellently with the painting of the parts with ICHTHYOL in the evening. This also follows-up or supplements frictions with Sand or Marble Soap, and is heightened in its effects by the latter.

ICHTHYOL is the internal remedy *par excellence* against Acne; it is useful in *all* forms—the pustular as well as the papular. Under its consistent use many other complaints heal,—for example, the severest kind of *Gastro-intestinal Catarrh*. It is also the best *supporting measure* which we can combine with the external treatment of Acne. These remarks are based on my results in a great number of Acne patients treated with ICHTHYOL during the last three years.

In this affection I sometimes prescribed 15 drops of ICHTHYOL internally, twice daily, and a 10% lotion of this remedy (℥ XLV: 3 i) to be painted-on at night. By day the customary bathing with hot water and ICHTHYOL Soap was ordered.

Among *Eczemas*, we distinguish two chief groups. The one comprises those kinds which are brought on by *nerve-lesions*; the other, such as are caused by *parasites*.

The form called by me *Nervous Eczema* attacks generally adults. The eruption appears in very characteristic crops, similar to Zoster, always multiple, and with a marked tendency to exact symmetry. The form of the disease is the vesicular one, and the eczematous vesicles are seldom so beautifully formed, so tense and lasting as here. It occurs preferably in the region of the Radial nerve, and on the face; seldom on the trunk.

I do not believe that this form of Eczema—which shows an unusual tendency to relapses—can be permanently cured by local treatment alone, as general disturbances of health and pronounced anemia of the skin and mucous membranes, almost always co-exist. Here now is a favorable field for the internal and external use of ICHTHYOL.

Therapy—External.

—ICHTHYOL.—

I have seen severe cases of Nervous Eczema pass away *permanently* and the entire constitution improve under the long-continued use of ICHTHYOL, after having been treated in the usual manner with ointments of Zinc, Lead, and Tar with only *partial* success—the disease regularly disappearing and *returning* again with equal regularity after a short time.

ICHTHYOL can be used externally in much stronger concentration in these cases of Eczema, than in those produced by parasites. On account of the anemia of the skin, present in most cases, the horny layer is very firm. It is specially advantageous, in the very beginning, to pencil the ICHTHYOL as little diluted as possible on the groups of vesicles, before they have been scratched, in order to cause them to dry-up rapidly. However, it is advisable to use the ICHTHYOL externally only periodically, —restricting it to newly-appearing groups of vesicles, and instead continue its systematic internal exhibition.

Under certain circumstances, it would be advantageous to preface some other Eczema treatment with the use of ICHTHYOL, in view of its very rapid drying effect, as preparatory.

In *Lichen urticatus* of children, ICHTHYOL promptly produced an improvement if certain constitutional lacks and wants were recognized (as weakness, indigestion, anorexia, restless sleep, anemia of the skin, emaciation, etc.), which were at the same time removed by the ICHTHYOL. In a severe case of this kind, I painted the entire body—with special reference to the efflorescences—morning and night, with a mixture of equal parts of ICHTHYOL and Water, and administered 3, later 5 drops of the same solution, twice daily. The result was surprising: the *itching disappeared*; the child *slept well*; the *appetite returned*; the patient became extremely lively, and was scarcely recognizable.

With *Lichen urticatus* we may include ordinary *Urticaria*, *Erythema multiforme et nodosum*, *Zoster*, and *Dermatitis herpetiformis*. These are all suitable for the *strong* external treatment with ICHTHYOL. The chronic forms are specially suited to an *internal* ICHTHYOL treatment. The urticarial wheal occurring about a flea-bite, *immediately* ceases to itch, and dries-up *rapidly*, upon being painted with ICHTHYOL.

One of the most important *Parasitic Eczemas* is the genuine Scrofulous or *Tuberculous Eczema*. It is amply characterized as such by the seizure of the mucous orifices of the head, the Rhinitis complicating it, Otitis media, Blepharitis ciliaris, Conjunctivitis, Keratitis phlyctænulosa, and the never-failing glandular swelling of the neck with its tendency to caseation. It attacks children only.

In these cases, ICHTHYOL, internally and externally, does brilliantly. The Eczema *disappears rapidly*, the *appetite returns*, and the bodily *weight increases*. Externally, rubbing 3 times daily with a mixture of Lime-water and Oil, or with a liniment composed of 1 part of ICHTHYOL and 20 parts each of Lime-water and Olive Oil, and washing with ICHTHYOL Soap, produce the desired effect.

ICHTHYOL has shown itself to be a very *prompt* remedy in *Intertrigo*. It is best, from the very start, to rub-in a strong (M XLV: § 1) ICHTHYOL salve. If the wounded, reddened portion is still small and the disease only one or two days old, a *single* application is generally sufficient to root out the disease.

In this category belongs the chafing resulting from severe marching and riding in summer. Frequently *one* application of a mixture of equal parts of ICHTHYOL and

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Therapy—External.

super-fatty Potash soap (MOLLIN), rubbed into a foam and permitted to dry on the parts, is sufficient to effect a cure.

In old *marginated* Eczema a strong combination of Salicylic Acid (1:5) is advisable in order to accelerate the cure.

For the forms of Eczema not mentioned, ICHTHYOL is an *adjuvant* remedy of no mean value, which, in small doses accelerates the drying-up of weeping surfaces, and, in large doses effects the absorption of firm infiltrations.

ICHTHYOL is also a good remedy in Pityriasis capitis and the so-called Seborrhœa sicca capitis.

In *Furuncles* of the scalp, the application of a 1:5 ICHTHYOL ointment, or a mixture of equal parts of ICHTHYOL and super-fatty Potash soap, rubbed into a lather, is very efficacious.

In *Erysipeloid*, painting with an aqueous solution of ICHTHYOL (M XXV : $\frac{3}{4}$ 1) is sufficient to produce a rapid cure. *Leprosy*, *Psoriasis*, *Sycosis*, and *Lupus* can be cured by the use of ICHTHYOL. In *Lupus*, the application of a 1:2 ICHTHYOL salve cures *promptly*. A 10% ICHTHYOL ointment (M XLV : $\frac{3}{4}$ 1) may be recommended for the after-treatment.

ICHTHYOL is of value in *Sycosis* only when prescribed in a mixture of 1 part ICHTHYOL, 2 parts super-fatty Potash soap, and 2 parts Oil of Cade,—to be rubbed into the affected parts of the skin.

I have treated pointed *Condylomata* and *Keloids* successfully with ICHTHYOL. In the former, it is applied undiluted by means of a brush; in the latter, ICHTHYOL-COLLODION or concentrated ICHTHYOL-SALVE-SOAP is to be recommended, according to the location—whether on hairy or non-hairy places.

The daily application of a strong ICHTHYOL ointment or of ICHTHYOL-COLLODION can be recommended for extensive and deep *scars* of the face, such as frequently remain after Small-pox and Acne; it leads to almost *complete disappearance* of the scars.

ICHTHYOL has proved very useful in *Burns*. It noticeably *lessens the pain*, *paralyzes the effect*, and, if immediately applied, *prevents the formation of blisters*. I have frequently observed that persons who expose themselves considerably to heat-radiation, can successfully combat the skin affections resulting therefrom by anointing the parts beforehand with a 25% ICHTHYOL ointment (3 II : $\frac{3}{4}$ 1), or with a paste composed of 1 part ICHTHYOL and 5 parts Dextrin.—P. G. UNNA.

[*Dermatologische Studien*; Hamburg, 1886.]

In Skin Diseases.

I have employed ICHTHYOL in 175 cases of **Skin Diseases**, including *Acne rosacea*, *Acne vulgaris*, *Erysipelas*, *Eczema*, *Prurigo*, *Pruritus*, *Seborrhœa sicca capitis*, *Burns*, and *Frostbites*, with excellent results. I employed the remedy externally, in ointments or lotions (M XXV-XC : $\frac{3}{4}$ 1),—in *Erysipelas*, Lanolin ointments (3 IIS-IV : $\frac{3}{4}$ 1); internally, I prescribed 3-5 of the 1½-minim ICHTHYOL Pills, three times daily. I have drawn the following conclusions from my experience:—

1.)—ICHTHYOL is useful as an external application in a great many acute and chronic affections of the skin, especially in *Acne rosacea*, *Burns*, *Chilblains*, *Erysipelas* and in *Eczema neuroticum*.

2.)—ICHTHYOL is an *efficacious* internal remedy in those diseases of the skin which depend more or less on disorders of digestion and of nutrition; it improves appetite and digestion, and stimulates metabolism.—CARL KOPP.

[*Münchener Medizinische Wochenschrift*; 1889; Nos. 35-6.]

Therapy—Internal.

—ICHTHYOL.—

2.—THERAPY—INTERNAL.

Anti-emetic and Appetizer.

I prescribed ICHTHYOL internally in the form of capsules of 0.25 gramme [$3\frac{3}{4}$ minims] each, in a case of *Chronic Gastric Catarrh*. The patient had suffered many years from it, ate very little, had no appetite, and vomited, on the average, twice a day. Bismuth Subnitrate with Morphine gave only temporary relief, but effected no permanent improvement. I finally decided to use ICHTHYOL in the form of capsules, and, after administering sixteen, the *vomiting ceased*, and at the same time, there was a *great improvement in the appetite as well as in the general health* of the patient, who, after the use of thirty-six capsules, was completely cured; there has been *no return* of unfavorable symptoms.—LORENZ.

[*Deutsche Militärärztliche Zeitschrift*; 1885; No. 11.]**Antirheumatic and Antipodagric.**

ICHTHYOL has achieved a most prominent success in the treatment of **Rheumatism** and **Gout**. ICHTHYOL ointment (3 II: 3 I) frequently causes pain and swelling to disappear in less than 24 hours. In *Chronic Rheumatism* the local treatment alone is frequently sufficient; in *Acute Rheumatism*, it had better be conjoined with the internal treatment.

I myself, was afflicted with *Arthritis deformans* of both hip joints, as well as of the knuckles. After taking from 3–15 ICHTHYOL pills twice daily for one month, I was cured to such an extent that I could walk, and mount my horse, without pain; the enlarged knuckles had become pale and free from tenderness on pressure.

One of the chief advantages of ICHTHYOL is the total absence of all discomfort under a prolonged use. It increases the appetite, stimulates the action of the liver and of the bowels, and is, no doubt, the remedy *par excellence* for abdominal engorgements.—A. MUELLER.

[*Australasian Medical Gazette*; Sydney, 1890; No. 108.]**Appetizer and Gastric Tonic.**

I have prescribed ICHTHYOL internally in solution in numerous cases of *Dyspepsia*, and can say that it invariably created appetite, improved digestion, and proved to be a very *efficacious* remedy against vertigo, flushes of heat, and vague pains, which frequently complicate gastro-intestinal Dyspepsia. I usually prescribed 10–15 centigrammes [$1\frac{1}{2}$ – $2\frac{1}{2}$ minims] three times daily, well diluted. In most cases a cure was effected in a few days; cases in which the trouble had existed for years seldom required more than a week for a complete cure.—A. STOCQUART.

[*Archives de Médecine et de Chirurgie de Bruxelles*; 1890; No. 12.]**As an Alterative.**

According to our three years' experience with ICHTHYOL, it is an excellent remedy in *Flatulence* and disorders of the stomach and bowels. It arrests *Catarrhs* of the mucous membranes, and facilitates the digestion of food.

The dose and the form in which ICHTHYOL is to be administered, must be regulated according to idiosyncrasy. Although it sometimes causes eructations of gas at the beginning of its internal use, the same ICHTHYOL is a *remedy* in eructations from bad digestion.

—ICHTHYOL.—

Therapy—External.

We have here in the country a certain form of *Scrofula* in children, which probably results from over-feeding. These children generally eat much bread, unsalted and rancid butter, bad potatoes, rotten cheese, and unripe fruit, but object to eating meat and milk-food. Besides, they drink turbid, dirty cider. They look pretty well, but the lymphatic glands are swollen; they have bad teeth and coated tongues, and pass very fetid feces; the scalp, ears, and corners of the mouth are eczematous; affections of the eyes are seldom absent.

These cases were formerly treated with an antiseptic bath,—more recently with solutions of Creolin,—while Calomel was administered internally. But it often required seven days before the stools improved. We now only prescribe a mixture of 1 part ICHTHYOL, 1 part Alcohol, and 1 part Ether after the bath. At first we administer as many drops as years of age, twice daily, well diluted; subsequently we gradually increase the dose.

The second day we can already notice a change; the tongue has a better appearance, and the feces are less fetid.

Glands, if inflamed, are treated with pure ICHTHYOL; even when much enlarged, they are quickly reduced in size by this treatment.

This remedy also has a powerful **Alterative** effect in adults. A case of *Gout*, which failed to be benefited by the usual remedies, was *cured* in three months by the internal use of ICHTHYOL.

A girl suffering from *Chlorosis* and incipient *Tuberculosis* had taken Iron pills and Morphine in large doses. She was so feeble that she could do nothing; she weighed 85 pounds. We prescribed ICHTHYOL pills with good effect; her *weight increased* in spite of restricted dietary. Supposing that the lungs had suffered too, we induced her to take as much as 54 minims of ICHTHYOL daily. In consequence the quantity of urine voided was increased, and the sputum—which contained bacilli—was diminished; after twelve weeks it contained *no more bacilli*, and the general health continued to improve.

In all those cases of debility dependent upon rapid growth in children, or upon nervous disorders, in cases where the *Scrofula* is localized only in the nose, ICHTHYOL is of great value; it acts *much better than Cod-liver Oil*.—VON HOFFMAN AND LANGE.

[*Therapeutische Monatshefte*; Berlin, 1889; No. 5.]

As an Antinephritic.

I am pleased to state that I fully confirm the results of Prof. ZUELZER, of Berlin, in respect to the excellent effect of ICHTHYOL on the general health.

I have had most favorable results from this remedy in a number of cases of **Chronic Nephritis**. In the case of a man, 48 years of age, who was treated by the internal use of ICHTHYOL in the form of pills (up to 12 pills daily), the quantity of albumin in the urine *decreased within 8 days*; at the end of 3 months (the patient having taken at least 3½ ounces of ICHTHYOL) *no albumin* could be discovered in the urine.

I therefore sincerely recommend the internal use of ICHTHYOL, as it will always improve the general health—a fact in itself of great value.—LORENZ.

[*Berliner Klinische Wochenschrift*; Berlin, 1888; No. 29.]

As an Antirheumatic.

The taste of ICHTHYOL is certainly not agreeable, but most of the patients soon acquire the habit of taking it. In the form of sugar-coated pills, however, it can be administered to the most sensitive

Therapy—External.—**ICHTHYOL.**—

persons. The patients often were surprised at the beneficial influence of ICHTHYOL on the appetite, the general feeling, and the appearance.

I always began with small doses,—for instance, 1 pill containing $1\frac{1}{2}$ minims, or 4 drops of ICHTHYOL, three times a day,—increasing gradually to 5 pills or to 20 drops three times a day; eructations of gas, if present, soon disappeared.

I noticed excellent results in **Rheumatism** from the internal use of ICHTHYOL simultaneously with its external application; I had a great number of cases, *all* of which terminated *satisfactorily*, although other remedies had been used before in vain.

Externally I sometimes applied an ointment composed of equal parts of ICHTHYOL and Petrolatum, but more frequently one composed of equal parts of ICHTHYOL and Lanolin, 3 times a day. Sometimes I ordered a lotion composed of equal parts of ICHTHYOL, Alcohol, and Ether,—to be rubbed-in several times daily. The pain was always *promptly* relieved, the joints became flexible, appetite was restored, the general health was improved, and the muscular power was increased.—LORENZ.

[*Berliner Klinische Wochenschrift*; Berlin, 1888; No. 29.]

As a Tonic.

The first day or two of the internal administration of ICHTHYOL, it generally causes eructations having the peculiar odor of the remedy, which, however, disappear very soon. *No gastric disturbances follow*: on the contrary, a feeling of ease and comfort is produced which encourages the patient to continue its use.

I generally prescribed 1–2 capsules, each containing 0.25 gramme [$3\frac{3}{4}$ minims], or 2–4 pills each containing 0.1 gramme [$1\frac{1}{2}$ minims] of ICHTHYOL,—to be repeated every 3 or 4 hours.

The diseases which were treated comprised *Catarrh of the Bladder*, *Chronic Gonorrhoea*, *Spermatorrhea*, *Pyelonephritis*, *Chronic Bright's Disease*, and *Diabetes mellitus*. In 28 cases out of 30, the patients—after the internal use of ICHTHYOL—found relief from their pains within a few days, and generally showed a much better complexion. Besides, by the use of the ICHTHYOL *the bodily weight steadily increased*, week after week. Within two months, I observed an increase of 3 kilos [$6\frac{3}{5}$ lbs. Av.] five times, an increase of almost 4 kilos [$8\frac{4}{5}$ lbs. Av.] twice, and one of 8 kilos [$17\frac{3}{5}$ lbs. Av.] once.

This increase of weight and improvement of the general health support my opinion that we possess in ICHTHYOL a remedy which is very likely to favor the formation of albuminoids in the system, and to retard their disintegration.—Prof. ZUELZER.

[*Monatshefte für Praktische Dermatologie*; Berlin, 1886; No. 12.]

In Chronic Affections.

Sedative, Anti-rheumatic, Anti-diabetic.

Among the many remedies invented and pushed during the last few years, ICHTHYOL is, in my opinion, one of the most remarkable. I have used it both in my hospital and private practice, and am so satisfied with the results, that I deem it useful to publish the same.

I employed ICHTHYOL in a case of *Rosacea* of long standing of the erythematous form,—prescribing it both internally and externally,—with the result of effecting a *perfect cure* in 2 months. I then advised the patient to use ICHTHYOL Soap and warm water when washing the face; *no relapse* since. I have treated a great many similar cases with the same success. I tried ICHTHYOL also in *Acne*, but think that in this affection the cure requires more time.

—ICHTHYOL.—

Therapy—Internal.

Even in *Chronic Urticaria* I have seen good results follow the use of ICHTHYOL, internally and externally—in the latter case in solution (℥ XLV : 3 i). *The itching ceased promptly.*

Chilblains should be painted with a mixture of 3 parts ICHTHYOL and 7 parts Turpentine or Olive Oil.

I successfully employed ICHTHYOL internally in *Alcoholismus chronicus*. The trembling diminished, the appetite reappeared, and the patients could sleep without being annoyed by dreams. In one case strong trembling ceased within 10 days.

In cases of *depression* with fear and uneasiness, which sometimes prevails in *Gastric Catarrh*, ICHTHYOL is of great value; the melancholic disposition is abated, and the disordered stomach improved. I usually prescribe 2 or 3 pills three times daily.

In *Chronic Rheumatism*, both of the articular and muscular form, and in *Gout*, I have observed excellent results from the simultaneous internal and external use of ICHTHYOL.

I have tried this remedy also in *Chronic Nephritis* and in *Diabetes*, with encouraging results. In a case of the latter disease, the patient passed $6\frac{1}{4}$ pints of urine during the first 24 hours of his stay in the hospital, of specific gravity 1.040 and containing 7.1% sugar. With the internal use of ICHTHYOL and regulation of diet, the urine was reduced in 6 weeks in volume to $3\frac{1}{4}$ pints, and in specific gravity to 1.012, the amount of sugar contained therein to 0.5%.

I believe that ICHTHYOL is an excellent remedy in all diseases depending upon anomalies in the circulation of the blood and upon dilated vessels, and that it will be of great value to every practitioner who takes the trouble to study its action.

I always order ICHTHYOL for internal use with an equal part of Distilled Water, to facilitate exact dropping; sometimes pills or capsules.

I have never seen any injurious effects.—Prof. N. O. GADDE.

[*Therapeutische Monatshefte*; Berlin, 1889: No. 3.]

In Chronic Nephritis.

Appetizer, Tonic, Diuretic.

with any other remedy.

I should like to report on an astonishing result from the use of ICHTHYOL, such as I have never obtained

Ida B. sent for me on the 29th of August, 1887. There was considerable edema of the face and extremities, and moderate ascites. The patient could hardly walk or sit—the swelling of the knees rendering flexion impossible. The urine was clear, scanty, and contained much albumin. The patient felt sick, and vomited a part of whatever she ate; she had a feeling as if the stomach were over-full, and complained of a continual dull pain near the kidneys. The patient stated that she had suffered from this disease for 8 years, and that it was the result of Chlorosis. No menses since. She had been under medical treatment continually, but without success.

Diagnosis: *Chronic Nephritis*.

Treatment: On the 8th of September, I ordered ICHTHYOL internally—15 minims daily. The vomiting disappeared gradually, the appetite improved, and the diuresis increased; the patient also felt more comfortable. I restricted the diet to milk.

After a time cold bathing and frictions of the whole body were resorted to, but the ICHTHYOL was continued. As a result, walking became easier, and the swelling diminished. At the end of November I suspended the baths but continued the ICHTHYOL. In December, there was no swelling at all in the morning, and only a very

Therapy—External.—**ICHTHYOL.**—

slight one in the evening. The improvement continued, appetite and digestion remained unimpaired, and at the end of December, the quantity of albumin had decreased *two-thirds*. The patient felt fairly well, but nevertheless continued the internal use of ICHTHYOL.

On May 1st, 1888, the patient called on me; she had grown stouter, even the menses had reappeared in February and April without causing any inconvenience, after having been arrested for 8 years. I examined the urine and noted a *further decrease of albumin*. She returned to her situation on the 20th of May, and as far as I know, continues to keep well. The dropsical swelling has not re-appeared.

The assertion of Prof. VON NUSSBAUM that ICHTHYOL is of use in all diseases dependent upon hyperemia and capillary dilatation, seems to be confirmed in this case.—BLITTERSDORF.

[*Therapeutische Monatshefte*; Berlin, 1888; July.]

In Gastric and Intestinal Catarrh.

Since its introduction ICHTHYOL has found most diversified employment in diseases differing widely in nature, but usually associated with inflammation.

Having learned of the good results which LORENZ, UNNA, and BLITTERSDORF obtained from the use of ICHTHYOL in **Gastro-intestinal Catarrh**, I employed the latter substance in 23 similar cases,—2 of Acute Gastric Catarrh, 2 of Acute Intestinal Catarrh, 4 of Chronic Gastric Catarrh, and 15 of Chronic Intestinal Catarrh.

The *best results* I obtained in the case of Acute Gastric Catarrh: *all the symptoms*, disappeared *promptly* upon the administration of ICHTHYOL. In the patients suffering from Acute Intestinal Catarrh, however, no perceptible improvement was effected. In the cases of Chronic Gastric and Chronic Intestinal Catarrh, on the other hand, an improvement in the symptoms promptly followed the use of ICHTHYOL: the formation of intestinal gases was lessened, and the bowels became more regular.

In all my cases I administered the SULPHO-ICHTHYOLATE OF SODIUM in daily doses of 0.3–0.9 gramme [$4\frac{1}{2}$ – $13\frac{1}{2}$ minims].—A. P. JAWITZCKY.

[*Therapeutische Monatshefte*; Berlin, 1891; No. 4.]

Mode of Employing Internally.

The internal administration of ICHTHYOL is essentially facilitated by the sugar-coated pills now manufactured. At the beginning it sometimes happens that the patients complain of eructations of gas; but this disturbance is not of long duration.

There are a great many diseases in which ICHTHYOL is recommended internally. Not only in *Rheumatism* and *Gout*, but especially in *Skin Diseases* have excellent cures been effected by the internal use of this remedy.

Every capillary dilatation,—the *Red Nose* as well as the chronic reddened throat,—the *Asthma* associated with *Eczema*, *Disorders of the Stomach*, *Pelvic Neuralgia*, and *Sciatica*, have all been successfully treated with ICHTHYOL. All this has been noticed by competent authorities.

All the diseases in which ICHTHYOL proves efficacious depend upon *hyperemia* and *capillary dilatation*. This explains why here and there ICHTHYOL has been tried unsuccessfully in the affections mentioned. For instance, there is no chance of curing Pelvic Neuralgias or Sciaticas dependent upon *atrophic* conditions by ICHTHYOL.

—ICHTHYOL.—

Surgery.

The good results I obtained refer for the most part to those neuralgias with pain in the joints and muscles, which had been treated unsuccessfully with other remedies; ICHTHYOL was administered internally, and the pain was *soon* relieved.

In affections of the joints, with little power of motion, the latter was regained gradually.

That ICHTHYOL is suspected to be a panacea results from the fact that there are a great many affections dependent upon capillary dilatation; we consequently cannot wonder that this remedy is efficacious in so many apparently different diseases.

I generally prescribe 2 pills, each containing $1\frac{1}{2}$ minims of ICHTHYOL, twice daily; I increase the dose gradually to 5 pills and even to 12 pills, twice daily.

As soon as the desired effect is obtained, the use of the ICHTHYOL is suspended, in order to prevent the patient becoming accustomed to it. In cases of relapse,—for instance a fresh arthritic attack,—I think it best to begin with the largest dose,—say 10 pills twice a day,—as I have noticed that in these cases small doses have no effect.

I never observed any injurious action; I myself often swallowed *repeatedly*—*experimenti causa*—50 pills (equal to $1\frac{1}{3}$ drams of ICHTHYOL) a day, and always felt well.—VON NUSSBAUM.

[*Therapeutische Monatshefte*; Berlin, 1888; No. 1.]**Mode of Employing Internally**

In Skin Diseases.

The internal dose of ICHTHYOL in *Diseases of the Skin* is determined more from the susceptibility and idiosyncrasy of the individual, than from the kind of dermatosis. The largest possible dose should be administered for the longest time possible; this will circulate in the skin only as the weakest dose. The dose is determined also by the age of the patient, the general constitution, and the diseases accompanying the skin affection.

The smallest dose for children under two years of age is about 2 drops daily; for older children and adults, 5 drops. The dose can easily be increased with most persons to 5–10 drops of ICHTHYOL three times daily, without creating any antipathy to the remedy. Generally, the latter is present only for the first few days, and gradually disappears completely. A piece of candy, or some orange- or lemon-juice is sufficient to remove the after-taste; children often take ICHTHYOL very readily.

If, in the beginning, nausea and eructations appear after taking the remedy, still, *no real digestive disturbance is caused by its use*; on the contrary, there are few remedies which so surely—gradually, but effectually—remove old gastric and intestinal catarrhs. It is always advisable to begin with small doses, but later to continue in the normal dose.—P. G. UNNA.

[*Dermatologische Studien*; Hamburg, 1886.]**3.—SURGERY.****Granulator in Wounds, Antiphlogistic.**

I saw most surprising effects of ICHTHYOL in a case of *Eczematous Ulceration* accompanied by great itching. Numerous remedies had been tried for months previously, but without success. The ulcer did not heal, the itching continued. At last, an ICHTHYOL ointment (10 parts ICHTHYOL, 40 parts Olive Oil, 50 parts Lanolin) was tried, with the result, that the itching abated the first night, and the ulcer healed within a short time.

Surgery.

—ICHTHYOL.—

By means of ICHTHYOL I *succeeded* in arresting the progress of a disease in which there has been nothing but failure,—*Erysipelas*. I had tried to limit it by means of Tincture of Iodine, Nitrate of Silver, red-hot pins, and incisions, but all in vain.

Whenever wounded people, suffering from Erysipelas were brought to me, I always first disinfected the wound thoroughly, and provided for a complete and effective discharge of the pus. If the Erysipelas did not disappear with this treatment, I painted the affected part with ICHTHYOL ointment, made with Vaseline or Lanolin (3 iv : $\frac{3}{4}$ i), and covered it with 10% Salicylated cotton. As a result, the disease not only *did not extend, but rapidly disappeared*. The inflamed and much swollen surface was of a yellowish-brown color and wrinkled the next day, and the swelling had subsided.

In many cases of *arthritic pains* of long standing, the severe pain was relieved *instantly*, and entirely removed in a short time by applying to the part a strong ICHTHYOL ointment (3 parts ICHTHYOL, 2 parts Water or Olive Oil, and 5 parts Lanolin; or equal parts of ICHTHYOL and Vaseline or Lanolin), and then covering it with Salicylated cotton.—Prof. VON NUSSBAUM.

[*Allgemeine Wiener Medizinische Zeitung*: Vienna, 1887; No. 1.]

In Anthrax.

Some years ago, Dr. JULES GUÉRIN, of Paris, pointed out the risk in making crucial incisions in **Anthrax**; he declared that he was in favor of semi-circular incisions with previous cauterization for arresting the Anthrax. I prefer cauterization too, but generally avail myself of ICHTHYOL and Silver Nitrate in less malignant cases. I lay on the Anthrax, thrice daily, a thick coat of an ointment of ICHTHYOL 1 part, Camphor Cerate 3 parts; and dress the sore with antiseptic wadding. The following day or later, according to the state of the Anthrax, I introduce a Silver Nitrate point into the different small white points of suppuration. The application of the ointment is continued until the kernel can be removed. The ointment is now applied but once a day. The cure generally requires about a fortnight.

In my experience, ICHTHYOL added to Camphor Ointment *quickly reduced the inflammation and the pain*; it produced *no irritation*; the suppuration and the removal of the kernel required *less time* than when using the ordinary remedies; *cicatrizatio*n was *rapid and perfect*; and the general health of the patient did not suffer in any way.—JULES FÉLIX.

[*Archives de Médecine et de Chirurgie*; Brussels, 1888; No. 3.]

Surgical Antiseptic, Desiccant, and Astringent.

In Surgery which, more than all other branches of Medicine, demands decided antiseptics, ICHTHYOL should be used in *concentrated* form, for then only does it act as an **Antiseptic**. It can be left in wounds *without any danger* whatever; it does not act as a foreign body, it causes no suppuration,—on the contrary, it exercises a beneficial effect as a **Desiccant** and **Astringent**. After its absorption, the walls of the cavity firmly adhere together, and are not covered with profuse granulation tissue as is the case when Iodoform is used.

I have made use of this property of the drug to bring about union in *Abscesses*, *Atheromatous cavities*, *Hydroceles*, etc. If the cavities contain pus, they must first be carefully washed out with a solution of one of the ordinary antiseptics.

—ICHTHYOL.—

Gynecology.

In this respect ICHTHYOL has only to compete with Tincture of Iodine, to which it certainly is preferable on account of being *absolutely harmless*. Furthermore, injections of undiluted Tincture of Iodine occasion *violent, persisting* pain, while ICHTHYOL produces but a *slight* and very *transient* pain.

ICHTHYOL is likewise useful in *open wounds*, especially simple fissured wounds of the scalp. By brushing them over with undiluted ICHTHYOL, *neither sutures nor bandages are required, and the wounds heal not only well and promptly, but also without the least pain or inflammation*.

In sutured wounds on the hands, arms, and many other parts of the body, painting with pure ICHTHYOL will produce beautiful, scarcely visible cicatrices.

This simple treatment is also suitable for *Erysipelatous Inflammations* arising from wounds, and for *Rheumatic Affections* of the muscles and tendons.

ICHTHYOL-COLLODION has proved useful in my hands in *Glandular Swelling, Cicatricial Keloid, Bursitis præpatellaris, Varices* of all kinds, *Epididymitis*, and *Funiculitis*.

One form in which ICHTHYOL in weak aqueous solution can be suitably applied is the *mull bandage*, undressed and free from fat, upon which from time to time the solution (℥ x-XLV : ℥ i) is dropped after it is firmly applied to the part,—moisture being retained by gutta-percha tissue. This form of application is specially practicable in *Sprains, Contusions, Blisters*, and in *Erysipelas* of the extremities.—P. G. UNNA.

[*Dermatologische Studien*; Hamburg, 1886.]

4.—GYNECOLOGY.

A Gynecological Remedy.

We have employed ICHTHYOL in 100 cases of *inflammatory* diseases peculiar to women, accompanied with exudations about the uterus (Parametritis, Perimetritis, Pelveo-peritonitis, Oöphoritis, Salpingitis, Peri-oöphoritis, and Perisalpingitis).

We introduced tampons of Bruns's cotton, saturated with a solution of ICHTHYOL in Glycerin (℥ XLV : ℥ i), into the vagina, as near to the affected part as possible; or painted the vagina with the solution before introducing the tampon. The tampons were renewed every day, whenever practicable. Of late we employ rectal suppositories, each containing 10 centigrammes [$1\frac{1}{2}$ minims] ICHTHYOL: one or two daily. In extensive pelveo-peritoneal exudation, an ICHTHYOL-Lanolin ointment (℥ xc : ℥ i), was applied once or twice daily to the hypogastrium. In severe cases, 3-4 sugar-coated pills, each containing 0.1 gramme [$\frac{1}{2}$ minim] ICHTHYOL, were administered daily in conjunction with the local treatment.

The results in our cases have been highly satisfactory, to say the least. The *analgetic* effect of the drug was as *prompt* as it was *surprising*. Often were the most violent pains relieved by the first tampon.

The property of promoting absorption—prominent in ICHTHYOL—deserves particular mention. It was more *marked* and *prompt* in some of our cases, than we have ever observed it to be in any other remedy.—REITMANN AND SCHÖNAUER.

[*Wiener Klinische Wochenschrift*; Vienna, 1890; No. 23.]**Gynecological Anodyne and Astringent.**

My experiments with ICHTHYOL on 45 patients, within a period of 2 months, extended over cases of acute, as well as chronic *Parametritis, Perimetritis*, and *Salpingi-*

tis, *Endometritis* with abundant purulent discharge, *Cervical Catarrh* with a hard, hypertrophied, eroded cervix, *Vaginal Catarrh*, and *Vaginal Blennorrhœa*.

A Glycerin solution of ICHTHYOL (℥ XLV : ʒ i) was used *intra-vaginally*, and an ointment made of 2 parts ICHTHYOL, 9 Vaseline, and 9 Lanolin *externally*.

In the earlier experiments, I employed *tampons* made of Bruns's Cotton and provided with strings, soaked with the Glycerin solution of ICHTHYOL.

In the later ones, I applied the remedy *directly* to the diseased parts, undiluted or in solution with Glycerin (℥ XLV : ʒ i). The previous careful cleansing of the parts by *dry* means is preferable to irrigation with fluids, because the ICHTHYOL, being an *oily* liquid, *adheres better* to the diseased parts when the latter are *dry*.

In Cervical Catarrh and Endometritis, I swabbed the cervix and even the uterus with *undiluted* ICHTHYOL or with the above solution. If this procedure was impracticable on account of the narrowness of the cervical canal, the solution was injected into the uterus by means of a Bozemann's double-barrelled catheter. Either procedure was repeated every 3rd–5th day. In painful affections the abdomen was rubbed once a day with the 10% ointment. Vaginal irrigation and all other treatment was avoided.

As far as the action of ICHTHYOL is concerned, its **Anodyne** effect manifested itself in most cases after *one* or a few applications,—alike in acute and chronic Parametritis and Perimetritis as in painful inflammation of the cervix and uterus. In a case of *Carcinoma uteri*, in which extremely painful swelling of the superficial and deep inguinal glands followed excochleation, a single application of the ICHTHYOL ointment to the painful parts had a most powerful anodyne effect. There is no need of increasing the strength of the external application to insure relief from pain, as *no tolerance* for the remedy is established.

In my experiments, ICHTHYOL proved less efficacious as a remedy favoring absorption in old *chronic* exudations, whereas in *acute* exudative processes, good results were often obtained in a very short time with ICHTHYOL.

In *Acute Vaginitis* with excessive swelling and hyperemia, I observed a decided diminution in the tumefaction and redness after but a few applications of the ICHTHYOL Glycerin.

In cases of chronic inflammation of the vaginal mucous membrane, with *venous* congestion, the property of contracting bloodvessels showed itself still more prominently.

The latter property also adapts ICHTHYOL to the treatment of *Chronic Cervical Metritis* accompanied by hypertrophy and venous engorgement. Occasionally a few applications of ICHTHYOL Glycerin, with a pencil, were capable of rendering a hyperemic and hard cervix pale, and on continued use, soft and pliable.

The *pure* ICHTHYOL, more so than the ICHTHYOL Glycerin, exerted a specially good healing influence on *Erosions of the Cervix*. In *bleeding* erosions the remedy was less useful as it is almost totally void of styptic action.

The **Astringent** action of ICHTHYOL distinctly manifested itself in the treatment of *Acute Vaginal Blennorrhœa*. In this affection, two or three applications of ICHTHYOL Glycerin caused a diminution of the inflammation and of the discharge.

In *Purulent Endometritis*, ICHTHYOL was less successful, probably on account of its being accessible only with difficulty.

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I never observed any untoward symptoms to follow painting with ICHTHYOL Glycerin or rubbing with ICHTHYOL ointment; even the intra-uterine injections of the former, as well as the intra-vaginal application of undiluted ICHTHYOL, were borne well.—RICHARD BLOCH.

[*Wiener Medizinische Wochenschrift*; Vienna, 1890; Nos. 50, 51.]**Gynecological Antiphlogistic.**

It is generally known that the inflammatory affections of the sexual organs constitute the greater part of the **Diseases of Women**, and therefore it is obvious that we endeavor to profit by every new remedy or method which is recommended. ICHTHYOL *acts advantageously in all cases characterized by inflammation.*

Internally, I prescribe it in the form of sugar-coated pills, each containing $1\frac{1}{2}$ minims ICHTHYOL, commencing with 1 pill and increasing to 3 pills, 3 times a day. *Locally*, I apply a mixture of 5 parts of ICHTHYOL and 100 parts of Glycerin by means of vaginal tampons. It effected a *rapid and complete* cure in *Parametritis, Perimetritis, Chronic Metritis, Oöphoritis, Salpingitis, and Pruritus.*

ICHTHYOL was also applied to the abdomen as an embrocation with equal parts of Lanolin, or with soft soap in the proportion of 1:10. Pruritus was treated by painting with an aqueous solution of ICHTHYOL (\mathfrak{M} XLV : $\frac{3}{4}$ 1).

I believe that ICHTHYOL deserves to be used universally as a remedy in *Cracked Nipples*. I apply undiluted ICHTHYOL-ZINC after washing the affected nipple, with the effect of relieving the pain in one or two applications.

The internal use of this remedy was followed by *increased appetite* and power of digestion, without any noticeable diuresis. *I never observed any injurious or disagreeable action of* ICHTHYOL,—neither internally nor externally.

I was happy to notice the unusually great power of ICHTHYOL in *causing absorption*, which is of great importance in all these affections; furthermore, the pain was almost *instantly* relieved.

In conclusion, I must state that, as a matter of course, there are cases in which ICHTHYOL must not be expected to be applicable from the commencement, it may have to be preceded by antiphlogistic and narcotic measures, owing to excessive sensitiveness of the parts, and will often be most advantageously followed by massage or electrical treatment. In no case must the importance of a rational dietary be overlooked.

At all events, it is the duty of every practitioner to try ICHTHYOL in inflammatory affections of women, before resorting to operation.—H. W. FREUND.

[*Berliner Klinische Wochenschrift*; Berlin, 1890; No. 45.]**In Gynecology.**

From the end of May to the end of October of last year, I employed ICHTHYOL in 28 cases of *Endometritis cervicis*, in 6 of *Endometritis corporis uteri*, and in 52 of *Perimetritis* (Pelveo-peritonitis, Exudations, Salpingitis, and Oöphoritis), in the manner recommended by FREUND (*See above*!).

In Cervical Catarrh, I painted the vaginal portion with ICHTHYOL, and swabbed the mucous membrane of the cervix with cotton dipped in ICHTHYOL. In acute cases, I applied the remedy myself two or three times a week, and had the patients introduce tampons dipped in Glycerin solutions of ICHTHYOL (\mathfrak{M} XXV–XLV : $\frac{3}{4}$ 1), in the intervals. 6–8 applications sufficed for a cure.

Other Specialties.—**ICHTHYOL.**—

In Endometritis corporis uteri, I swabbed the cavity of the uterus with pure ICHTHYOL every 4 or 5 days, after scraping—whenever the latter was necessary. *All of my cases have been cured.* I therefore regard ICHTHYOL as a prominently *sovereign remedy* in this affection. It never produces pain or collapse, as is the case with injections of Tincture of Iodine, or with Chloride of Zinc.

In the 52 cases of Perimetritis,—all afebrile,—I daily introduced tampons saturated with ICHTHYOL Glycerin (M XLV : 3 I), prescribed a 1½-minim ICHTHYOL pill three times a day, and recommended warm sitz-baths. This treatment was usually more *prompt* than any other; the pain was relieved as a rule, by the first application, and the exudation was speedily absorbed.—KÖTSCHAU.

[*Münchener Medizinische Wochenschrift*; Munich, 1891; No. 1.]

5.—OTHER SPECIALTIES.**As an Antisymphilitic.**

Succedaneum for Mercury.

Syphilis in various forms. PERONI claims to have obtained *excellent results* from the use of ICHTHYOL in the treatment of 28 cases of Syphilis in various forms. He administered the remedy internally in *daily doses* of 0.5–2 grammes [8–32 min.], and applied it externally in solution (M XXV : 3 I), mixed with Salicylic Acid.

[*Nouveaux Remèdes*, 1891; No. 1.]

Cure for Leprosy.

A very interesting paper was read by Dr. UNNA at the Fourth International Medical Congress, held at Wiesbaden in April, 1885, concerning the cure of a severe case of **Leprosy**. After describing the particular symptoms of that disease, all of which were present in the patient, the author went on to explain his mode of treatment, stating the different methods he tried and applied day by day, and their respective effects.

From his scrupulous observations he draws the following conclusions:

1.)—Leprosy, even of universal extension and more than one year's standing, can be cured.

2.)—The cure can be effected in a comparatively short time by the energetic internal and external employment of the reducing remedies.

3.)—Among the latter may be specially recommended ICHTHYOL, Chrysarobin, Pyrogallol, and Resorcin.

4.)—The ICHTHYOL must be applied externally in a highly concentrated state,—for instance, in a mixture of 10 parts ICHTHYOL, 7 parts Lard, and 3 parts Oil.

For internal use the usual doses (15–24 minims *pro die*) are to be taken. ICHTHYOL, being the *only* reducing remedy which can be taken internally *in infinitum*, is consequently of very great value in the treatment of Leprosy, especially of the internal organs (eyes, testicles, liver, lymphatic glands, etc.). Its external application, besides, is suitable for patients of weak constitution, or with very sensitive skins; it likewise ought to be used intercurrently when the stronger remedies, such as Chrysarobin and Pyrogallol, are not borne well, and against lesions of the skin caused by those remedies.

The cure UNNA effected in this case may be considered *complete*, externally and internally, because the health improved much, the nutritive conditions and processes going on as well as ever before the disease began. This improvement of the nutrition was visibly dependent upon the internal use of ICHTHYOL, which had already proved to be a mild external antileprotic.

—ICHTHYOL.—

Other Specialties.

Last, but not least, *this remedy can be taken internally in infinitum without the least inconvenience*, so that in case there should remain some germs of the disease in the system, they would all be destroyed in the course of time.

In Erysipelas.**Anodyne, Antiphlogistic.**

During the last few weeks I had the pleasure of succeeding in curing **Erysipelas** in a simple way, and now wish to communicate these gratifying results to the medical profession.

According to what has been published by UNNA, and what I have noticed personally, I regard this excellent remedy (ICHTHYOL) as belonging to the so-called *reducing* remedies. It *always* exercises a *beneficial* effect on inflammations.

In Erysipelas *with wounds*, I first washed the latter carefully with a disinfectant solution, and covered them with appropriate compresses of Iodoform gauze. I then applied a coating of equal parts of ICHTHYOL and Lanolin (or Vaseline) to the affected and adjoining parts, and dressed all with 10% Salicylic wadding.

The following day I could see that the Erysipelas, of which I duly marked the outlines, had *not extended* further, and that the affected parts had a better appearance; the *swelling had subsided*, and the *pain was gone*: in short, the *inflammation had disappeared*, and did not reappear although this treatment was repeated only three days.

I have treated several cases of Erysipelas of the extremities in the same manner, and always with the same good result.

In Erysipelas of the face, I prefer the application of ICHTHYOL-COLLODION, and in those of the scalp, ICHTHYOL Soap.

As regards the healing power of ICHTHYOL, I do not believe that it is an antiseptic capable of destroying the Erysipelas cocci; I rather think the reducing action of this remedy sterilizes the surface so that the cocci can no longer thrive thereon.

—Prof. VON NUSSBAUM.

[Allgemeine Wiener Medizinische Zeitung: Vienna, 1887; No. 1.]

In Erysipelas.

Knowing that UNNA and VON NUSSBAUM obtained excellent results from the use of ICHTHYOL in **Erysipelas**, I tried it in an attack of *Erysipelas of the Face*. In this case, in spite of the immediate application of Salicylic Acid-Vaseline ointment, the disease spread rapidly; temperature 40.6°C [105 F]. The skin was swollen, especially around the nose and eyes, and the patient complained of violent pain; no appetite, but always thirsty.

I now tried ICHTHYOL Collodion (ICHTHYOL 1 part, Ether 1 part, Collodion 2 parts). After carefully washing the surrounding parts, I first painted the mixture on these and then on the affected area; no wadding was used,—the Collodion being a covering in itself. Upon my return after six hours, I observed that the Erysipelas had *not extended*, that the *skin was less irritated*, that the *pain was relieved*, that the *thirst had lessened*, and that the *temperature*—without the use of antipyretics—*had fallen to 38.5° C [101.3 F]*; three hours later it had fallen to 37.3° C [99.1 F]. On the 5th day the patient could leave her bed, whilst formerly some 8–10 days more were required. On the 8th day she was able to resume her duties. How can we explain this result?

ICHTHYOL belongs to the *reducing* remedies, and consequently by its application withdraws Oxygen from the respective tissues; it thus deprives the cocci of an important vital agent. It, moreover, exercises a beneficial effect by *contracting the capillaries and veins*, and, consequently, by reducing the hyperemia and the transudation of serous matter into the tissues. Under these circumstances the cocci can no longer develop.

Other Specialties.

—ICHTHYOL.—

Furthermore, the Collodion forms a uniform, homogeneous and impermeable covering, which mechanically prevents the access of air to the bacterial soil, and at the same time diminishes the succulency of the latter.

I am therefore of the opinion, that we ought to apply ICHTHYOL-COLLODION in Erysipelas.—VON BRUNN.

[*Therapeutische Monatshefte* ; Berlin, 1889 ; No. 5.] •

In Erysipelas.

In this affection ICHTHYOL is most efficacious when applied early, often, and freely. The application must be a most extensive and intensive one; in order to be effectual and lasting, it must be shut-off from the air, so that as much of the remedy will penetrate the skin as is possible.

Not only is the affected part of the skin rubbed for 10–15 minutes with pure ICHTHYOL or with ICHTHYOL Lanolin (equal parts or 2 : 1), but also the *sound* skin about the diseased part. I then smear a sufficient quantity of the ointment on the reddened skin to color it uniformly dark-brown. A thin layer of moist Salicylic Acid gauze is then placed over it, and finally the whole is covered with a thick layer of cotton-wool *not* deprived of its fat.

Occasionally I administered ICHTHYOL pills (1½ minims each) to the extent of 20 and more a day.

All my patients stated that the unendurable feeling of tension and the burning *immediately* gave way to an agreeable feeling of coolness. The *appetite remained unimpaired*, and the *fever declined* gradually, sometimes abruptly. The entire course of the disease was a mild one; seldom was there unconsciousness. The duration of *the disease was certainly shortened*, and the subsequent disagreeable and oft persistent edema, as well as the falling-out of the hair, was avoided.

By glancing at the following table, one can see the difference in duration between an attack of Erysipelas treated with ICHTHYOL, and one treated by the older methods :

Number of cases of Erysipelas treated in 1886, 31	Treated with preparations of Lead, lotions of Carbolic-Boracic Acid, Ointments, &c. 28	Treated with ICHTHYOL Ointment. 3
Average duration of an attack, days :	14	7
Number of cases in 1887, 42	27	15
Average duration of an attack, days :	10	7
Number of cases in 1888, 57	33	24
Average duration of an attack, days :	12	6.7
Number of cases in 1889, 21	10	11
Average duration of an attack, days :	9.5	5.6

—**ICHTHYOL.**—*Other Specialties.*

Cases treated *from the start* with ICHTHYOL terminated within 3–5 days. Such has been the experience also of LORENZ, MARTIN, and others.

VELPEAU fixes the average duration of an attack of Erysipelas at 12 days, CHOMEL at 12–15 days, GOLDZIEHER, of VON ZIEMSEN'S Clinic, from observations in 264 cases of Erysipelas faciei, at 12 days. All these observers treated their cases by the older methods,—*not* with ICHTHYOL.—JULIUS FESSLER.

[*Klinisch-experimentelle Studien*; Munich, 1891.]

In Erysipelas.

I have recently had occasion to treat numerous cases of **Erysipelas** with ICHTHYOL Collodion (ICHTHYOL 1 part, Ether 1 part, Collodion 2 parts), with such an excellent result that, for the present, I refrain from trying any other remedy. A thin black skin forms on the affected part after painting with the ICHTHYOL Collodion, which only disappears with the desquamation of the diseased skin, or can be removed by washing with Alcohol or Ether. This is extremely disagreeable in Erysipelas of the *face*, for which reason I prefer ICHTHYOL ointment (3 iv : 3 i) in these cases, and extend its application over the *sound* skin about the diseased parts. The face I leave uncovered, but other parts of the body I cover with gutta-percha tissue after the inunction.

I usually prescribe 0.06 gramme [1 grain] of Calomel every hour until the bowels move, and an ointment of equal parts of ICHTHYOL and Lard, to be applied 3 or 4 times daily.

Invariably the temperature falls, the inflammation at once ceases to spread, the pain disappears, the skin becomes paler and less tense, and a cure results in 2–4 days.

Inasmuch as a vast number of similar observations have been made, we may infer that ICHTHYOL is a remedy for Erysipelas, deserving of much attention. It *shortens the duration* of the disease, and often breaks it off abruptly.—W. L. SCHADKEWITSCH.

[*Medizinische Rundschau* : Moscow, 1888; No. 12.]

In Erysipelas faciei.

During the year 1889, I treated 89 cases of **Erysipelas faciei**: 29 by means of ICHTHYOL Collodion, (ICHTHYOL 1 part, Ether 1 part, Collodion 2 parts), 33 by means of Ice-compresses, and the balance by means of Tar. In the first series (ICHTHYOL Collodion), the disease did not spread in 15 cases, spread slightly in 6 cases, spread considerably in 8 cases. In the second series (Ice-compresses), the Erysipelas did not spread in 12 cases, spread slightly in 4 cases, spread considerably in 20 cases. In the third series, the disease did not spread in 12 cases, spread slightly in 1 case, spread considerably in 14 cases.

Bullae were *never* observed in the ICHTHYOL treatment, whereas they developed in 10 of the cases treated with Tar, and in 12 of those treated by means of Ice-compresses.

The average duration of the cases treated with ICHTHYOL Collodion was 6 days, of those treated with Ice-compresses 8 days, and of those with Tar 9 days.

Relapses were observed 5 times in the cases treated with ICHTHYOL Collodion, 12 times in the cases treated by means of the Ice-compresses, and 9 times in the cases treated with Tar.

As is evident from these comparisons, the treatment by means of ICHTHYOL Collodion *surpassed* the other methods almost in every respect. I ought to state also that

Other Specialties.

—ICHTHYOL.—

the application of ICHTHYOL Collodion was more soothing and analgetic than either of the other applications.—CHR. ULRICH.

[*Hospitals-Tidende*, Copenhagen, 1889; No. 41.]

In Influenza.

Owing to the fact, that ICHTHYOL has been recommended by Prof. EWALD in diseases of the throat, and regarding Influenza as dependent upon a certain bacillus as is the case in Erysipelas, which affection is always successfully treated with ICHTHYOL, I determined to try inhalations of this remedy (ICHTHYOL 1 part, Water 50 parts). These inhalations have been employed in 110 cases, of which I deduct 30 as being doubtful, on account of being cured in two days. As to the remaining 80 cases, it is certain that, in every instance, the symptoms were *promptly* alleviated by the *first* inhalation (vapor-spray); the convulsive *cough abated*. After the second or third inhalation the patients were generally so well satisfied with the effect, that they became desirous of inhaling again.

ICHTHYOL solution was inhaled twice daily; it was also repeatedly evaporated on the stove in the sick-rooms. Sometimes, for control, patients were deprived of this treatment 2-3 days later, in which cases the cough re-appeared almost immediately.

The cough disappeared completely in 76 cases after 6-10 inhalations; expectoration ceased on the second day.

The same good effect was noticed with respect to the mucous membrane of the nose: the excretion was lessened, and ceased after about 10 inhalations.

Apart from this, 1½-minim sugar-coated ICHTHYOL pills were prescribed for all the patients that complained of bad digestion (2-5, twice daily). Appetite was regained within 2-3 days; in 8 severe cases, within 4-5 days.

As a whole, the duration of the disease was rather *short*; patients treated with ICHTHYOL did not suffer from relapses, nor require a long time to recuperate; in short, they came out from the struggle with Influenza, *unweakened*.—LORENZ.

[*Berliner Klinische Wochenschrift*; Berlin, 1890; No. 15.]

In Leprosy.

My own experience coincides very closely with that of Dr. UNNA. While treating a case of *Lepra anæsthetica*, which was doing very well under mercurial treatment and DE VALANGIN's famous old remedy, I received from him the communication recommending ICHTHYOL for Leprosy. I decided to give the treatment a fair trial, limiting it, however, to the second stage; that is to say, the treatment with ICHTHYOL and Resorcin only, but prescribing the former also as pills internally. *The effect was excellent*. The patient, though much run down by the disease, bore the remedies well; before long both the anesthesia and the staining had materially lessened, and when last I saw the case, everything pointed to a cure.

Since then I have employed these medicines extensively in bad cases of Erythema persistens,—to which I consider Leprosy closely allied, though classed with the tubercula,—and have found these remedies singularly beneficial. I have no hesitation, therefore, in recommending a trial of them in Leprosy.—J. L. MILTON.

[*Times of India*; London, 1890; May 3d.]

—ICHTHYOL.—

Domestic Uses.

PRACTICAL HINTS
ON THE
DOMESTIC USES OF ICHTHYOL.

[Based on information furnished by the ICHTHYOL COMPANY, Hamburg.]

**In Rheumatism, Gout,
Sciatica, Lumbago.**

First bathe the part with luke-warm water and soap, and then dry without rubbing. This done, apply the ICHTHYOL by gently stroking the part with the hand, as is done with liniments, then cover with wadding or flannel to keep the air out, or powder with French chalk where such packing is impossible. Both the bathing and the stroking to be repeated twice a day—morning and evening.

It sometimes happens that after several days' rubbing, pustules form on the skin, which, besides secreting a fluid, itch also. This, however, can be considered as a good effect, and the itching will soon be relieved by applying an aqueous solution of ICHTHYOL (1½ teaspoonfuls to a wineglassful of water, or weaker). The bathing and rubbing must be repeated again as soon as possible in order to complete the cure.

In Rheumatism and Gout of *long standing*, ICHTHYOL may be taken internally in conjunction with its external application; 20 drops in a wineglassful of water to be taken at first in the morning only, and then in the morning and evening, or two 1½-minim ICHTHYOL *Pills*, or one 3¾-minim *Capsule*, morning and evening,—increasing to 10-12 pills or 6 capsules a day, according to the severity of the case. The patient will soon become accustomed to the peculiar taste of the remedy, particularly if he attenuates it with much water.

**In Neuralgia, Headache,
Tic douloureux.**

The 10 or 30% *Alcoholo-ethereal Solution* of ICHTHYOL (a preparation to be had in the trade) does very good service in these affections. It is applied best by means of a small sponge, two or three times a day; bathing the part with luke-warm water should precede each application, whenever practicable.

In Toothache.

The pain can be *quickly* eased by inserting a piece of cotton saturated with pure ICHTHYOL into the cavity of the tooth.

In Burns.

Apply ICHTHYOL *Wadding* slightly moistened with water, or paint the parts with equal parts Water and ICHTHYOL, or with the latter in undiluted form. The pain will be almost *instantaneously* alleviated, and blisters will seldom form if the ICHTHYOL is promptly applied.

In Contusions and Sprains.

Repeated rubbing with pure ICHTHYOL, after bathing, subdues the swelling and the pain connected with it. In certain cases it is advisable to add Glycerin (one-fifth part), in order to allow brisk rubbing.

Domestic Uses.—**ICHTHYOL.**—**In Cold in the Head,
Nasal Polypi.**

Insert *ICHTHYOL Wadding* into the nostrils, or paint the latter with a solution of 4-5 parts of *ICHTHYOL* in 6-5 parts of warm water; besides, it is advisable to inhale the vapor of 1-2%-solutions (15-30 drops of *ICHTHYOL* in a wineglassful of boiling water).

In Chilblains, Chapped Hands.

Apply a mixture of equal parts of *ICHTHYOL* and Glycerin, or use *ICHTHYOL Soap*.

**In Tetter, Shingles,
Ringworm, etc.**

10-25% solutions (say 1 part *ICHTHYOL* to 9-3 parts of boiled water) are very useful. The percentage of *ICHTHYOL* can still be increased and even pure *ICHTHYOL* be used—according to the condition of the disease. The affected parts are always to be previously bathed with luke-warm water and *ICHTHYOL Soap*.

**In Roughness, Blotches,
Eruptions of the Skin.**

The affected parts are to be treated with water, as hot as possible, and *ICHTHYOL Soap*. It is best to wipe-off the hot soap-lather, and then to powder the respective parts; or let the lather dry by itself.

**In Open Wounds.
Styptic.**

First stop the bleeding by means of *ICHTHYOL Wadding* or other dressings saturated with *ICHTHYOL*, and then put a piece of *ICHTHYOL Plaster* on the wound, after pressing the edges of it together as well as possible. *Small wounds* from cutting, etc., need only be covered with *ICHTHYOL Plaster*, which generally adheres, in spite of repeated washing, until the wounds are healed.

**In Acute and Chronic Gastric Diseases,
Liver Complaints, Constipation.**

Administer *ICHTHYOL* internally as prescribed above for Rheumatism and Gout of long standing.

**In Colds in the Respiratory Organs,
Glandular Inflammations.**

Either gargle with a 1% solution (20 drops to a wineglassful of warm water),—taking only a small portion each time as it foams much,—or inhale 1-2% solutions by means of a spraying apparatus.

—ICHTHYOL.—

Formulas.

FORMULAS FOR ICHTHYOL PRESCRIPTIONS.

Acne.

- (1.)—ICHTHYOL..... 3 parts.
 Distilled Water..... 10 "
 Glycerin..... 10 "
 Dextrin 10 "

Paint on at night, and wash off the next morning.

(During the day, use a weak solution of Corrosive Sublimate.)

- (2.)—ICHTHYOL..... 4 drams.
 Mercury Bi-chloride..... ½ grain.
 Zinc Ointment..... 2 ounces.

Apply after washing with ICHTHYOL Soap.

Acne rosacea.

- ICHTHYOL 1 part.
 Distilled Water 2 parts.
 15-30 drops daily; increase the dose gradually.
To be taken in water, mornings and evenings.
 (Conjoin herewith the external treatment as indicated for ACNE.)

Angina catarrhalis.

- ICHTHYOL..... 2 parts.
 Distilled Water..... 150 "
 Alcohol..... 3-5 "
 GARGLE !

Arthritis acuta et chronica.

- (1.)—ICHTHYOL..... 10 parts.
 Chloroform..... 3 "
 Lanolin..... 5 "
 Olive Oil..... 5 "
 LINIMENT!—*Wash the affected part well with warm water and soap, and apply the liniment on cotton wool.*

- (2.)—ICHTHYOL..... 150 minims.
 Divide into 100 pills.
Two to five pills, three times daily.

- (3.)—ICHTHYOL..... 1 part.
 Lanolin (or Vaseline) 1 "
Apply freely, cover with cotton, and bandage.

- (4.)—ICHTHYOL 3 parts.
 Olive Oil..... 10 "
 EXTERNALLY!—*Apply freely, cover with cotton, and bandage.*

- (5.)—ICHTHYOL..... 5 parts.
 Salicylic Acid..... 1 "
 Collodion..... 50 "
 Castor Oil. 5 "
 EXTERNALLY!—*Paint the joints, mornings and evenings.*

- (6.)—ICHTHYOL..... 1-3 parts.
 Absolute Alcohol..... 3-5 "
 Ether..... 3-5 "
 PAINT !

- (7.)—ICHTHYOL..... 1 ounce.
 15-30 drops, three times daily.

Burns.

- (1.)—ICHTHYOL..... 1 ounce.
 PAINT !

(In Burns of the first degree.)

- (2.)—ICHTHYOL..... 1 part.
 Lanolin..... 3 parts.
 (In Burns of the second degree.)

- (3.)—ICHTHYOL..... 2-5 parts.
 Distilled Water..... 20 "

EXTERNALLY!—*Bandage the parts with soft Mull bandages, and keep moist with the solution.*

(In Burns of the third degree.)

- (4.)—ICHTHYOL. 3 parts.
 Lanolin..... 20 "

(In Burns of the third degree.)

Bursitis præpatellaris.

- ICHTHYOL..... 1 part.
 Spirits Ether..... 2 parts.
 Collodion 2 "

PAINT !

(Useful also in Swollen Glands, Varices, and Funiculitis.)

Catarrhus gastricus.

- (1.)—ICHTHYOL..... ¾ drams.
 Divide into 50 parts and dispense in gelatine capsules.

Three times daily, one or two capsules.

- (2.)—ICHTHYOL 150 minims.
 Divide into 100 pills.

Three times daily, two to five pills.

Catarrhus vesicæ.

- ICHTHYOL..... 1½-4½ minims.
 Distilled Water 6¾ fl. ounces.

Dilute with the same amount of warm Distilled Water to wash-out the bladder.

Chilblains.

Same as in Burns.—*See, also, PERNIONES.*

Contusions.

- (1.)—ICHTHYOL..... 10 parts.
 Chloroform 3 "
 Lanolin..... 7 "

LINIMENT !

- (2.)—ICHTHYOL..... 1 part.
 Absolute Alcohol..... 2 parts.
 Ether 2 "

EXTERNALLY !

- (3.)—ICHTHYOL..... 1 part.
 Distilled Water..... 10 parts.

LOTION!—*Apply frequently to the dressing, which cover with gutta-percha tissue.*

Formulas.

—ICHTHYOL.—

Coryza.

ICHTHYOL 20 parts.
 Petrolatum 100 "
 Cumarin 1 part.

Paint the nose internally and externally herewith.

Defluvium capillorum.

ICHTHYOL 1-5 parts.
 Alcohol 140 "
 Castor Oil 50 "
 Balsam Peru 2 "

EXTERNALLY!—*Apply once daily with a flannel rag.*

Diphtheria.

(1.)—ICHTHYOL 1 ounce.
 PAINT!—*Apply every two hours.*

(2.)—ICHTHYOL 3 parts.
 Distilled Water 500 "
 GARGLE!—*Use every half hour.*

Eczema.

(1.)—ICHTHYOL 1-3 parts.
 Distilled Water 10
 Glycerin 10 "
 Dextrin 10 "
 (Useful where fats are contra-indicated.)

(2.)—ICHTHYOL 1-4 parts.
 Distilled Water 2 "
 Lanolin 10 "
 (In obstinate cases of *Chronic Eczema*.)

(3.)—ICHTHYOL 1 part.
 Lime Water 20 parts.
 Olive Oil 20 "
 LINIMENT!—*Apply three times daily.*
 (In *Scrophulous Eczema*.)

(4.)—ICHTHYOL 3 parts.
 White Bole 10 "
 Zinc Ointment 50 "
 ZINC-ICHTHYOL PASTE!

(5.)—ICHTHYOL 1 part.
 Diachylon Plaster (HEBRA) 10 parts.
 OINTMENT!
 (ICHTHYOL should be administered also *internally* in this as well as in most diseases of the skin.)

Epistaxis.

ICHTHYOL 1 part.
 Distilled Water 4 parts.

Soak a piece of cotton provided with a string in this solution, and introduce into the nostril.

Erysipelas.

(1.)—ICHTHYOL 1 part.
 Lanolin (or Vaseline) 1 "
Apply once or twice daily, and cover the part with cotton.

(2.)—ICHTHYOL 2 parts.
 Ether 1 part.
 Glycerin 1 "
 PAINT!
 (Useful on hairy parts of the body.)

(3.)—ICHTHYOL 1 part.
 Spirits Ether 1 "
 Collodion 2 parts.

PAINT!

(In *Erysipelas of Wounds*,—to be applied under the dressing.)

Erysipelas neonatorum universal.

ICHTHYOL 3 parts.
 Lanolin (or Vaseline) 8 "
Apply once daily.

Erythemata.

(1.)—ICHTHYOL 1 part.
 Distilled Water 2 parts.
15 drops, three times daily.

(2.)—ICHTHYOL 1 ounce.
 PAINT!
 (In *Erythema multiforme*, *Urticaria*, *Lichen Urticatus*, and *Lupus*.)

Fluor albus.

(1.)—ICHTHYOL 1-2 parts.
 Petrolatum 2 "
Apply to the Vagina.

(2.)—ICHTHYOL 1 part.
 Water 9-19 parts.
 For INJECTION!
 (Administer ICHTHYOL *internally* also.)

Furunculus.

ICHTHYOL 1 part.
 Super-fatty Potash Soap (Mollin!) 10 parts.
Rub into a lather on the part, three times daily.

Gonorrhea.

ICHTHYOL 12-24 minims.
 Cacao Butter enough to make 18 *Bougies*.
 EXTERNALLY!
 (In *Gleet*.)

Intertrigo.

(1.)—ICHTHYOL 1-3 parts.
 Distilled Water 10 "
 Glycerin 10 "
 Dextrin 10 "
 EXTERNALLY!

(2.)—ICHTHYOL 1 part.
 Lanolin 100 parts.
 Cumarin 1 part.
 EXTERNALLY!
 (For children.)

Ischias.

(1.)—ICHTHYOL 1 part.
 Spirits Ether 1 "
 EXTERNALLY!
 (In old *Sciaticas*, *Tic douloureux*, *Migraine*, and *Nervous Headache*.)

(2.)—ICHTHYOL 10-50 parts.
 Absolute Alcohol 2 "
 Lanolin 100 "
 EXTERNALLY!

—ICHTHYOL.—

Formulas.

Laryngitis.

SODIUM SULPHO-ICHTHYOLATE...1-2 parts.
Distilled Water. 50 "

GARGLE and INHALATION!

(In Laryngitis, Pharyngitis, Angina catarrhalis.)

Lepra tuberosa.

(1.)—ICHTHYOL..... 1 part.
Distilled Water..... 2 parts.
20-30 drops three times daily.

(2.)—ICHTHYOL..... 1 part.
Ointment..... 20 parts.

Lichen urticatus.

ICHTHYOL..... 1 part.
Distilled Water..... 1 "

Rub on the affected parts at night: take five drops twice daily.

Lipoma.

ICHTHYOL..... 1 part.
Lanolin..... 3 parts.

EXTERNALLY!

Lupus.

SULPHO-ICHTHYOLIC ACID..... 4 parts.
Mercury Bi-chloride..... 1 part.
Ether..... 20 parts.
Alcohol..... 20 "

EXTERNALLY!—(Dr. UNNA.)

Mastitis.

ICHTHYOL..... 5 parts.
Chloroform..... 1 part.
Absolute Alcohol..... 4 parts.

EXTERNALLY!—Cover the part with cotton.

Nephritis.

(1.)—LITHIUM SULPHO-ICHTHYOLATE...6½ fl. drams.
Divide into 100 capsules.
2-3-4 capsules, four times daily.
(Increase the dose gradually.)

(2.)—ICHTHYOL..... 1 ounce.
20-35 drops, three times daily.
(In Chronic Nephritis.)

Neuralgia.

(1.)—ICHTHYOL..... 1 part.
Absolute Alcohol..... 4 parts.
Ether..... 4 "

EXTERNALLY!

(2.)—ICHTHYOL..... 3 parts.
Chloroform..... 4 "
Spirits Camphor..... 16 "

LINIMENT!—Apply two or three times daily.

Odontalgia.

ICHTHYOL..... 1 part.
Chloroform..... 1 "

EXTERNALLY!—Drop a drop into the cavity of the tooth.

Panaritium.

ICHTHYOL..... 1 part.
Lanolin..... 1 "

EXTERNALLY!

Perityphilitis.

ICHTHYOL..... 5 grammes [77 minims].
Divide into 20 parts and dispense in gelatine capsules.

2-4 capsules, four times daily.

(Apply compresses soaked with a 10% aqueous solution of ICHTHYOL to the abdomen.)

Perniones.

(1.)—ICHTHYOL..... 1 part.
Turpentine Oil..... 1 "

LINIMENT!—Wash the parts with warm soap water, apply the liniment, and wrap in cotton.

Pleuritis.

(1.)—ICHTHYOL..... 1 part.
Lanolin..... 30 parts.
Potassium Iodide Ointment..... 40 "

Apply three times daily.

(2.)—SODIUM SULPHO-ICHTHYOLATE..... 1 part.
Spirits Ether..... 2 parts.

EXTERNALLY!

Pruritus.

(1.)—ICHTHYOL..... 10 parts.
Ether..... 7 "
Petrolatum..... 15-24 "

EXTERNALLY!

(2.)—ICHTHYOL..... 1 part.
Distilled Water..... 10 parts.

PAINT!

(In Pruritus senilis, Pruritus hyemalis, Diabetic Pruritus, Neurasthenic Pruritus.)

Sycosis.

ICHTHYOL..... 1 part.
Oil Cade..... 5 parts.
Super-fatty Potash Soap..... 20 "

Rub into a lather on the part.

Ulcus cruris.

(1.)—ICHTHYOL..... 1 part.
Lanolin (or Water)..... 10 parts.

PAINT!

(2.)—ICHTHYOL..... 1 part.
Lanolin..... 60 parts.



OINTMENT!

List of Specific Uses.

—ICHTHYOL.—

SPECIFIC USES OF ICHTHYOL,

as established by the Reports before cited.

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—ICHTHYOL.—

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CORROSIVE SUBLIMATE in almond-oil emulsion (1:1000) has been recommended for application in *acne*.

SULPHAMINOL-EUCALYPTOL is an 8% solution of Sulphaminol in Eucalyptol, which is applied as a paint in *laryngeal tuberculosis*.

MALT EXTRACT is lauded as a *taste-correctant* for castor oil. It is mixed with an equal quantity of the oil in a warm mortar.

LACTIC ACID is recommended by Dr. LESAGE in simple *dyspepsia* of children as well as in that associated with "spinach" stools.

POTASSIUM IODIDE, instilled into the eye in

$\frac{1}{2}\%$ solution daily, has been recommended for *muscae volitantes*,—so frequent in myopia.

CAMPHOR, dissolved in 6 parts turpentine oil, has been of service as an external application for *arresting the secretion of milk*.

BISMUTH SUB-NITRATE, with an equal quantity of CASTOR OIL, is reported to be of great benefit as an application to *sore nipples*.

POTASSIUM IODIDE is lauded by Dr. SEWENING in *chorea*. He administered a tablespoonful of a 1:60 solution of potassium iodide, three times daily, to a girl 10 years old; as a result the choreic movements disappeared after using about 2 drams of the salt.

EDITOR'S NOTES.

NEW BOOKS.

A TEXT-BOOK OF CHEMICAL PHYSIOLOGY AND PATHOLOGY. By W. D. HALLIBURTON, M.D., B.S., M.R.C.P.—Longmans, Greene & Co., London, and 15 E. Sixteenth St., New York, 1891.

The wonderful strides which are made almost daily in the realm of chemical physiology and pathology almost defy the efforts of an author to collect, sift and present the material to the profession in anything like completion. If a perusal of the different journals of our own and other countries were possible, the results no doubt would be good; but then one must of necessity have leisure time and a command of foreign tongues, both of which to a large extent are denied to the busy scientist and practitioner.

It was the aim of the author to present a complete and recent text-book in English, which shall be useful not only to the student of physiology and those pursuing original investigations, but also to the student of practical medicine and the medical practitioner.

Certainly an object so worthy commands praise, and beyond a doubt this gap in our literature has been most admirably and scientifically filled. To speak of the book in its detail would be to write another treatise on the same subject. A glance at the contents will suffice; however, a few of the topics demand special notice. The chapter on Proteids, Food, and Diet are of great interest. Some exceptions might be taken to the importance given to the CHO class of foodstuffs. Probably

the latest investigations on the subject of Food and Diet from a practical and clinical standpoint were made during the past year at the New York Post-Graduate Hospital and Medical School, and it would seem from these that the CHO class could but claim to supply to the system heat, energy, lubrication, and rotundity of form, while all the other vital or constructive phenomena depended upon the ingestion of proteid material. Again, it has been established that nature cannot join free nitrogen to a CHO molecule and form a proteid, but favors its rapid and complete oxidation into its final products, CO₂ and water.

The author says, "the proteids are the most important substances that occur in animal and vegetable organism; none of the phenomena characteristic of life occur without their presence. They are invariable and constant constituents of protoplasm." In speaking of the animal and vegetable proteids he gives one the idea that there are no essential differences between them; in other words, that the synthetical production of the vegetable proteid from soil and atmosphere will give a body identical to an animal proteid which is the result of the conversion of the synthetical body into a peptone and several other bodies and finally into an animal proteid.

The latest investigations, however, of the relative value of vegetable and animal proteids show that the CHNOS class of the vegetables are of higher nitrogenous atomicity and require of the body a greater amount of vital energy for their conversion into a peptone. The animal economy therefore seems to utilize

proteids with greater ease whose nature is nearer its own. This fact is of great importance in the compilation of dietary tables, and the author seems to recognize it more in his chapter on Diet.

The results of recent study in chemical pathology have offered solutions to some of the most difficult questions confronting the scientist. Probably the most profound and difficult study made has been that of the metabolic and metamorphic changes occurring in the tissues. Throughout the entire book one cannot but recognize the great importance which the author places on this subject, and to beginners in the study of the relation which super- and sub-oxidation bear to pathological conditions it offers an excellent groundwork for further research.

After speaking at length of the nature and constitution of the proteid body he says, "Instability and proneness to undergo intramolecular changes are two properties common to living proteids." This theory has been utilized by PORTER and LATHAM to explain certain morbid processes. They showed how by a rearrangement of atoms different from that occurring in normal metabolism sugar may be produced in diabetes, excess of uric acid in gout, lactic acid in rheumatism, and certain ptomaines or leucomaines in other complaints. One must therefore acknowledge that sub-oxidation of the proteid class of foods from whatever cause, is a most important factor to be recognized in the treatment of disease.

The more the chemistry of the living cell is studied, the more is it demonstrated how profound are the chemical revolutions it may bring about in organic compounds and especially in proteids, which are substances particularly prone to undergo intramolecular change.

The chapter devoted to urine is probably the most scientific description we have of that liquid. The great importance of a thorough knowledge of urinary analysis is recognized; and even more, one should by an intelligent appreciation of the results of the examination determine almost the exact state of body metabolism and oxidation. At the same time the functional work of the liver must be recognized, as also the fundamental chemical laws governing the relations existing between the constituents of the blood. An example of where this seems to be disregarded is in the chapter on Uric Acid, in which the author claims that the latest investigations seem to leave no doubt but that uric acid originates in the liver. The most recent research, however, on this subject propounds this question for those believing that this acid circulates free in the blood: "How can uric acid, having an atomic attraction nearly equal to nitric acid, circulate in such intimate connection with the alkaline and earthy salts and not form urates, and yet as soon as the urinary tubules are reached attack the same?" It seems much more scientific to obey known chemical laws and adhere to the view of GARROD, which is that "the kid-

neys constitute not only the seat of excretion but also that of formation of uric acid."

Part VI, on General Metabolism, contains many curious facts in regard to the ingestion of nutritive material and its "output" as energy, etc. It would require too much space to review it properly.

The book taken as a whole should certainly be in the library of every lover of the medical science, as almost indispensable for his further advancement. It contains many instructive tables and tests which could only with difficulty be obtained from other sources. The style is most pleasant and easy. The index is admirable. Withal, it is a book to be highly recommended. J. W.

A TEXT-BOOK OF PRACTICAL THERAPEUTICS, WITH ESPECIAL REFERENCE TO THE APPLICATION OF REMEDIAL MEASURES TO DISEASE, AND THEIR EMPLOYMENT UPON A RATIONAL BASIS. By H. A. HARE, M. D., B. S.—Lea Brothers & Co., Philadelphia. 1891. 8vo.

In this book, Dr. HARE presents a work on therapeutics and another on treatment. Both are so ingeniously interwoven that the student or graduate cannot but learn to what advantage he may use each drug, and also how best to use it.

Dr. HARE does not enter deeply, as other authors do, into the chemistry of each drug, but tells exactly what must be known.

Another commendable feature of the book is that the writer does not attempt to make a new classification, nor does he use any other classification, but treats the drugs in alphabetical order.

In this work we find articles on the later drugs, phenacetin, antipyrine, somnal, hypnal, iodole, cocaine, and others.

The doses and preparations are according to the Pharmacopœia of 1890 (on the committee for the revision of the old pharmacopœia, Dr. HARE was secretary); he also gives the doses according to the British Pharmacopœia.

In that part of the book devoted to treatment are excellent articles: upon diseases of the eye, by Dr. G. E. DE SCHWEINITZ; upon venereal diseases and antiseptics, by Dr. E. MARTIN; upon puerperal diseases, by Dr. B. C. HIRST; and by Dr. H. J. REEVES on diseases of the upper air-passages.

The writer also treats of the method of employing rest-cure, suspension treatment in locomotor ataxia and allied affections, etc.

The alphabetical arrangement makes it a handy reference book for both practitioner and student. It also contains a complete table of doses of all the drugs in the Pharmacopœia.

That the book is appreciated is proved by the fact that the first edition was run-out in six months.

G. G. F.

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MODERN MATERIA MEDICA.

As medicine advances towards an exact science, each day demands greater perfection and purity in the manufacture of the drugs and medicinal compounds that are to be used for the relief of human sufferings.

The often unknown and apparently unknowable composition of some of our medicinal agents has unquestionably been the nutriment and life-blood of the quack and empiricist.

The day, however, is rapidly approaching in which medical men must be both learned and scientific as well as being the so-called "practical physician," because the general intelligence of many of their patients demands from the physician a clear and lucid explanation of the existing pathological conditions and also the "why" and "wherefore" regarding the lines of treatment adopted.

The rapid advances which have recently been made in the practical application of the known laws of physiological-chemistry to clinical medicine, in the intelligent regu-

lation of our food-stuffs, and in the accurate administration of therapeutic agents, have clearly demonstrated that the workings of the human economy are as accurately governed by fixed laws as are the movements of the stars and planets in the heavens.

They also show that, by the use of definite and fixed chemical quantities in the way of food-stuffs and drugs, certain and positive results can be predicted by the scientific physician with as much precision as the astronomer gives previous notice of the movements of the planets.

So long as the profession are willing to use decoctions, tinctures, extracts, etc., which have no known composition or fixed chemical atomicities, it will be impossible to attain a very high degree of purification. But by carefully studying the quantities in the shape of definite compounds, glucosides, etc., and by determining which an exact atomicity is required, and an exact atomicity is then determined, given, and the atomicity of the substance is then determined, and the relative results are then determined.

THE ELEMENTS OF FEVER.

The vagueness with which the ancient term "fever" has been and still is used, renders a consideration of the subject of body-temperature worthy of a moment's notice.

Turning to our standard works of medicine for a concise and thoroughly comprehensive definition of fever, as a rule, yields an unsatisfactory result. In fact, a clear and intelligent explanation for this commonly-used term can but with difficulty be found.

There are, however, three lines of practical investigation in regard to the term "fever" that are worthy of being pursued,—namely, its etiological factors, its clinical significance, and its rational treatment.

Bodily temperature—normally and concisely stated—is the result of two primary factors: first, chemico-physiological activity, sometimes divided into glandular and muscular action, etc.; and, second, the molecular and body friction. Both conditions are sometimes extensively subdivided in literature, suiting the fancy of the writer.

Advancing a step further with the two primary factors, Nature may be said to possess the power to produce, to store up, and to excrete heat. All of these functions are of necessity regulated by the harmonious and uniform action of the nervous mechanism of the body. When all these phenomena work in unison, a standard of bodily temperature, between 36.5°C and 37.5°C [97.7°F], will be uniformly maintained. (Much has been said of the heat-centre; but it has not been accurately defined, and its positive

knowledge regarding drugs that may influence this unknown spot. Consequently a further discussion of the "heat centre" is unnecessary in this connection.)

A disturbance of any of the physiological conditions will interrupt the normal workings of the system and may, on the one hand, result in an increased production, an increased storage, or a decreased excretion of heat; any one of which, the others remaining at the normal standard, will raise the bodily temperature above the uniform and common level.

On the other hand, if for any reason the power on the part of the body to generate heat is decreased, or the ability to store heat is diminished, or the excretion of heat is greatly augmented, the reverse state of the system is induced.

The former state constitutes the condition known as fever; the other results in a sub-normal temperature.

The storage function is, of necessity, governed by, and is secondary to, the power on the part of the physiological economy to produce and excrete heat.

The etiological factors of fever, when considered on this basis, are naturally divided into conditions which tend to increase or to decrease the production of heat, or those influences which increase or decrease the excretion of heat;—the storage of heat being entirely regulated by the other two.

Among the factors that will induce the production of an increased body-temperature are: first, super-ingestion and super-assimilation of the ordinary food-stuffs. This, however, is usually counter-balanced by an increased excretion of heat, and the normal equilibrium is thus maintained. If the super-assimilation over-irritates the nervous system and the

normal heat-excreting power is checked, the bodily temperature rises until a state of suboxidation is induced; this produces nervous exhaustion, and the increased excretion of heat progresses until a sub-normal temperature is effected.

As a second factor may be mentioned together, the introduction of micro-organisms, ptomaines, leucomaines, etc., from without; in this same category may be included like substances produced within the alimentary canal and directly absorbed at this point, and then the leucomaines, ptomaines, katabolins, etc., generated within the system.

All these substances, whatever their source or origin may have been, when once they gain access to the lymphatic or blood channels, disturb, by their presence—acting as foreign and toxic elements,—the whole physiological mechanism. Nature, in her vigorous efforts to expel these poisons from the animal economy, generates more heat, the nervous system is unduly irritated, and the excretion of heat is partially suspended. As a necessary sequence, the bodily temperature progressively rises, and a profound and truly pathological fever is established.

In a third type the normal production of heat is maintained, nutrition remains undisturbed, but an undue nervous irritation is produced, by which the excretion of heat is decreased. Bodily temperature rises, and often to an extreme height. This class is perfectly illustrated in children, where slight irritative disturbances in digestion will cause a sudden and high rise in temperature, which often is as quickly dissipated.

In this light the clinical significance of fever assumes a threefold importance, and each separate condition should be

considered by itself before instituting treatment.

The first and third forms are of comparatively little account, but the second is all-important and can easily be distinguished from the other two by closely studying the urinary changes.

In the first and third the urine remains practically normal, but in the second it is decidedly changed. It becomes scanty, high-colored, super-acid, with a diminution in the urea and often an increase in urates, uric acid, oxalates, lactates, albumin, casts, and other by-products.

In the rational and scientific treatment of every rise in bodily temperature above the normal standard, those three physiological conditions should be kept clearly and constantly in mind. It should also be remembered, in the second class, that the fever is a symptomatic indication of a *necessary* rise in temperature, resulting from Nature's vigorous efforts to clear the system from an offending and often poisonous substance. Therefore in selecting remedies for the relief of these pyrexial conditions, the physiological abnormality should be considered rather than the simple lowering of the bodily heat.

The *fel-bovis* treatment in typhoid fever is a perfect illustration of a line of therapeutics which follows the dictates of natural laws and in part directly prevents the introduction of some of the etiological factors, and at the same time improves the digestive and assimilative powers of the system, thus empowering Nature more rapidly to excrete heat and repair the damage produced by the original poison. It also very decidedly assists Nature in her efforts to eliminate the original poison and those which may be secondarily developed within the animal economy.

PREVENTION OF TUBERCULOSIS.

Experimental investigation has stamped Tuberculosis as contagious,—that is, accepting the bacillus of KOCH as the essential element of the disease.

Tuberculosis is not contagious the same as scarlet fever, smallpox, measles, etc., but is contagious in the fact that the bacilli can be directly inoculated into the system and under favoring circumstances will produce this much-dreaded disease.

In the eruptive fevers the liability of apparently healthy individuals to be attacked is great, while the reverse is true in regard to tuberculosis.

Innumerable instances have been advanced to prove that long and constant association with tubercular patients has but rarely been followed by the disease. In contrast with this, many instances are recorded in which direct infection has been produced by contact or intimate relation with tubercular subjects of uncleanly habits.

The sputum containing the bacilli, which is scattered broadcast by tubercular sufferers, is, when dried, the most common source of infection. The tubercular poison in dust form is thus drawn into the lungs with the air inspired, and gains access to the lymphatic and vascular channels through some break in the continuity of the mucous membrane.

That "tuberculosis," in the present scientific acceptation of the term, is not an inherited disease, but is a condition that has always to be acquired after birth, is established upon the following data, namely, an abundance of carefully recorded post-mortem evidence, which gives the exact frequency of tubercular lesions from the time of conception

up to the fifteenth year of extra-uterine life. Among this is the Inaugural Dissertation of BALITZ, in 1890, where the results of 2,576 post-mortem examinations in children are recorded. In the still-born none were found tuberculous. Under the fourth week of extra-uterine life tubercular lesions were not found. From the fifth to the tenth week less than one per cent gave evidence of tuberculosis. But from the third to the sixth month a fraction over eight per cent contained well-defined tubercular lesions. From the sixth to the twelfth month a fraction over eighteen per cent were found to be tuberculous. From the first to the second year a fraction over twenty-six per cent, and from the end of the second to the fifteenth at least thirty per cent were the seat of tubercular lesions.

At a recent meeting of the NEW YORK ACADEMY OF MEDICINE it was the opinion of that scientific body "that it is the duty of the medical profession, acting as guardians of the public health, to acquaint the community at large with the true and contagious nature of tuberculosis.

But, in so doing, great care must be exercised lest undue alarm be developed and the contagiousness of the disease be viewed in a false light; and lest the fright that would naturally follow upon such false impressions should result in great injury to those already afflicted.

Taking the recent and scientific view of the purely contagious character of this disease into consideration,—along with the fact that the contagium is widely diffused by the dust of the dried sputum,—it follows that isolation of every tubercular case, together with a perfect system of disinfection, and complete destruction of all the excreta emitted from these patients,

ought, in a moderately short time, to completely eradicate tuberculosis from the face of the land.

While this most desirable and perfect theoretical result cannot be fully accomplished, much can still be secured in the line of preventing the spread of the contagium: and thus the number of new cases inoculated may be very greatly diminished.

By some it is advised that tuberculosis be listed among that class of contagious diseases which must be reported to, and remain under the control of, the health-boards. With all that might be accomplished by these authorized bodies,—together with constant and intelligent instruction by the physician to the patients,

their friends, and attendants, in reference to the proper methods to pursue in regard to disinfecting the rooms, clothing, utensils, etc., used by tuberculous persons,—associated with an authorized and careful collection and complete destruction of the sputum and all other tubercular discharges,—the spread of the contagium can be reduced to a minimum and the onward progress of this fatal malady greatly curtailed.

As the dried tubercular poison in the form of dust spreads rapidly, the repeated flooding of sidewalks, frequent and thorough sweeping of the streets (which must have previously been heavily sprinkled), will also greatly aid in arresting the spread of the disease in our large cities.

MEDICAL REPORTS

TO "MERCK'S BULLETIN."

TYPHOID FEVER SUCCESSFULLY TREATED WITH FEL BOVIS.

By ADOLPH ZEH, M.D.,

Instructor of Clinical Medicine at the NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL; Attending Physician to GERMAN and WEST-SIDE DISPENSARIES, New York.

The author having had the misfortune to lose a number of typhoid fever cases in rapid succession during the summer of 1887,—all of which had been treated with the then much-vaunted antipyretics, during which treatment these patients, because of the depression caused by these drugs, were a constant source of anxiety both to the doctor and the nurses,—it was of the utmost importance in future cases to institute such a line of treatment, that would not depress the patient already suffering with a devitalizing disease, and to diminish the amount of nursing and care necessary; as the majority of typhoid cases occur among those in the lower walks of life, where the nursing is divided among the members of the family. Trained nurses cannot be employed, and a certain repugnancy to hospital treatment exists.

The use of *Fel bovis* was suggested, and it has been used in the ten cases about to be reported during the whole period of observation. The author is in a position to compare this line of treatment with others, as during his service as interne in two city hospitals some fifty cases were treated upon the various plans generally used, among which are, the using of large and small doses of antipyrine, antifebrin, kairine, etc.; the various intestinal antiseptics, as naphthalene, salicylic acid and its derivatives, resorcin, creolin; yeast; the different mineral acids baths, cold sponging, etc.

Case No. 1.—Mr. H. R., aet. 19, U. S., salesman, came under observation Aug. 23, 1887.

Previous history:—Had been ailing two weeks, unable to work, with indefinite pains over entire body, anorexia and irregularly acting bowels. Since one week slight fever, with chilly sensation—without a pronounced chill—accompanied by considerable sweating. Headache pronounced, frequent bleeding from the

nose, some cough. Quinine did not improve the symptoms. Slight delirium at night.

Physical examination:—Percussion negative, auscultation slightly roughened breathing, no râles. Heart sounds are regular. Abdomen slightly distended, and generally painful. Pressure in the iliac region elicited pain and gurgling. Roseola spots were present, and the spleen was enlarged. Temperature 103.3° F, tongue coated. Urine was acid, sp. gr. 1.022, no albumin. Di-azo-reaction distinct.

One dose of antipyrine was given; the temperature fell but little. Then ten grains of calomel. The regular and continued treatment consisted in the administration of considerable doses of whiskey, and the following: Two grains of *Fel bovis purificatum siccum*, one grain of sulphate of quinine, and two grains of the extract of taraxacum put in capsule and given every three hours. The diet consisted of beef tea and milk peptonized with FAIRCHILD peptonizing tubes. (For temperature changes, see Fig. I.)

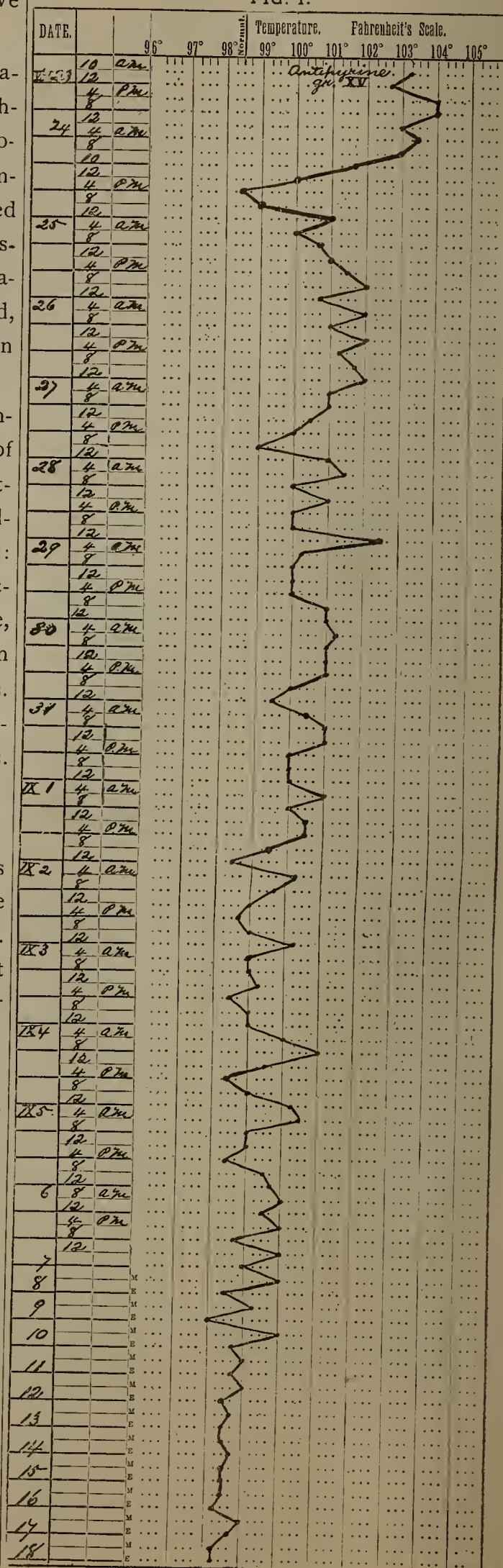
24th. Copious movement from the bowels.

25th. Temperature is moderate, the nights are quiet, cough has diminished, patient more comfortable, distension of abdomen lessened. On the 28th the temperature rose as a result of mental disturbance due to an unwished-for visitor.

31st. The bowels are moving once on an average in twenty-four hours, temperature ranges between 100° and 101° . The patient is comfortable, the nights are more restful, no cough, stomach tolerates medicine and food well. Eruption beginning to fade, the spleen diminished in size.

Sept. 3d. Whiskey discontinued, capsule given but four times a day. On the 4th the eruption invisible, no iliac pain or gurgling, abdomen flaccid. On the 12th the patient sits up in bed, and is given one drachm of scraped meat every four hours. On the 16th he receives pulpy food and toast. Walks about the room. On the 20th a general and well-

FIG. I.



selected diet begun, and capsule given but three times a day.

Case No. 2.—I. M., school girl, aet. 11, U. S. Patient had passed a part of her vacation in a malarious portion of the country, where she was taken sick, complaining of great weakness, loss of appetite, nausea, at first constipation, followed by a profuse and persistent diarrhea, fifteen movements occurring daily, recurring chills without periodicity, which did not yield to large doses of quinine, cough, pains over entire body, and persistent headache.

Aug. 2, 1889.—Condition of the patient as seen was the following: She was tall for her age, thin, and very anemic; face flushed and of apathetic appearance, tongue coated in the centre, with a slight tendency to dryness. Thoracic cavity: percussion negative, but on auscultation numerous râles and rhonchi were heard. The heart action was rapid and weak, otherwise normal. Abdomen not tympanitic, pressure on the iliac region elicited great pain and gurgling; the epigastrium was also painful, the spleen was enlarged, no roseola spots. Temp., 105° F. Urine of dark color, sp. gr. 1.024, acid, albumin present, but no casts. EHRLICH'S reaction obtainable.

The following treatment was instituted: for the diarrhea 5 grains of tannic acid and 3 grains of Dover's powder in the evening—to be repeated on the following morning should the diarrhea continue; for the high fever the cold pack for at least one half hour—and longer should the temperature continue high; active alcoholic stimulation. At the expiration of the half hour the temperature had fallen 4 degrees.

Aug. 13th. The diarrhea decidedly lessened, tannic acid and Dover's powder not repeated. The morning temperature was 102° F. Regular treatment was now begun, namely, 5 drops of dilute hydrochloric acid well diluted with water every 4 hours, and, in capsule form: 2 grains of *Fel bovis purificatum siccum*, 1 grain of sulphate of quinine, 2 grains of the extract of *taraxacum* and $\frac{1}{6}$ of a grain of the extract of *nux vomica* every 4

hours. For the harassing cough, a teaspoonful of the camphorated tincture of opium and 3 grains of the muriate of ammonium every 3 hours. Absolute fluid diet. Roseola spots are appearing; alvine discharges characteristic of typhoid fever.

Morning temperature of the 15th, 101° F; the child appeared brighter, the night was passed quietly, the tongue moist and beginning to clear, cough is easier, sputum less tenacious, but three movements during the last twenty-four hours. Evening temperature 102° F. The condition of the patient continued about the same for the following week. The morning temperature ranged between 100° and 101° F, and the evening between 101° and 102° F. From the 23d to 25th of August it fell in the morning to 99° and in the evening to 100°. On the 27th the temperature was normal and patient seemed on the road to absolute recovery. This continued until the morning of the 31st, when the temperature rose to 100° and in the following evening to 103°. The treatment had been continued up to date excepting the cough mixture. In dealing with the relapse, I determined for the sake of comparison to omit the capsule, and continue only with the hydrochloric acid and whiskey.

Sept. 1st. Morning temperature 105°, evening the same, diarrheal discharge of typhoid character, appearance of child not encouraging. She was stimulated with whiskey, ammonia, caffeine, and *nux vomica*. Milk and beef tea as diet; and hydrochloric acid as a digestive. These temperatures followed:

7 to 8 a.m.		6 to 7 p.m.	7 to 8 a.m.		6 to 7 p.m.
Sept. 2	103°	105°	Sept. 8	101°	102°
3	102.5	105	9	99	101
4	103.5	105	10	98	101
5	102	104	11	98	99
6	102	104	12	98	99
7	102	105	13	98	98

This record simulates a septic condition, yet nothing of that nature could be detected. The urine had failed of the di-azo-reaction during the original defervescence, but gave it during the relapse. On Sept. 23d, pa-

tient was out of bed, and scrapped meat allowed; quantity gradually increased. Convalescence continued uninterruptedly.

Case No. 3.—Mrs. L., aet. 40, German, laundress, gave the following history: She had been overworking herself for months, and for the past week was entirely exhausted, being unable to do any work, suffering at the same time with violent and unceasing frontal and occipital headache, an absolute disgust for food, disagreeable taste in mouth, bowels constipated. Slight rigor, yet great thirst existed.

Physical examination:—Pale and emaciated; tongue heavily coated. Thoracic cavity: percussion reveals no dullness; auscultation, breathing roughened anteriorly; posteriorly, breath-sound somewhat distant and indistinct. Heart-sounds normal, though a little weak. Abdomen tender on pressure, with acute pain and gurgling in the iliac region; spleen enlarged, roseola present. Temp., 104.5°. Urine, sp. gr. 1.023, acid; albumin, hyaline and granular casts present. EHRlich's reaction marked.

Treatment:—10 grains of calomel, followed by 2 grains *Fel bovis purificatum siccum*, $\frac{1}{6}$ of a grain of the extract of *nux vomica*, 1 grain of sulphate of quinine, and 2 grains of extract of *taraxacum*, in pill form, every 3 hours; whiskey in large quantities; and muriate ammonia as an expectorant. Fluid diet, consisting in milk and beef-tea.

July 16th. Patient had passed a restless night, muttering constantly while asleep, and attempting to leave her bed. The bowels moved thoroughly. Temperature this morning, 103°; headache not so severe.

18th. More quiet, and perfectly willing to remain in bed, taking her medicine regularly, but will not take beef-tea. RUDISH's sarcoptone substituted. Bowels have moved twice, temperature this morning 102°.

21st. Urine is less scanty and less concentrated, albumin has disappeared, EHRlich's test still obtainable. The abdominal tenderness, excepting that in the iliac region, has

disappeared. Roseola beginning to fade. *Caf-feine muriate*, grains 3, is given four times a day. Temperature this a.m. 101°. The nights are quiet, cough disturbing her but very little.

Temperature on the evening of the 26th was 101°; all the symptoms moderating, bowels move but twice a day, and stools are pulpy.

30th. The temperature ranged from 99° to 100°. In addition to fluid food, eggs given with milk and whiskey.

Aug. 5th. The morning temperature was normal, the evening somewhat over 99°. Condition of patient is good. On the 9th the evening temperature was normal. On the next day scrapped meat in teaspoonful-quantities was given three times, and gradually increased. The 15th, toast was added to the diet, and capsules together with the dilute hydrochloric acid were continued, the other drugs being abandoned. Recovery was ultimately complete.

Case No. 4.—C. B., aet. 21, piano-maker, U. S.—Had always enjoyed good health, with the exception of a single attack of articular rheumatism five years ago; since ten days had shown increasing weakness in his limbs and back, accompanied with intense headache and occasional nose-bleeding; lack of appetite, with a disagreeable taste in the mouth, tongue heavily coated in the morning, nausea, constipation, great thirst, chilly feeling alternating with hot flashes, but no perspiration. He has some cough and expectoration, breathing is labored. Sleep is much disturbed. This increased rather than diminished.—Examination:—He is tall and thin, features pinched, cheeks flushed, shows no interest in his surroundings. On percussion the chest reveals no dullness; breathing sonorous in character. Heart's action regular, no murmur. Abdomen considerably distended, tenderness present in the epigastric and iliac regions, also gurgling, spleen enlarged; eruption of typhoid over the abdomen. Temperature 105° in the evening. Urine, sp. gr. 1.024, acid in reaction, no albumin; di-azo-reaction obtained.

Treatment:—First, 10 grains of calomel; 5 drops of dilute hydrochloric acid, well diluted, regularly every four hours, and during the intervals to quench the thirst; capsule every 4 hours, containing 3 grains of *Fel bovis purificatum siccum*, 1 grain of sulphate of quinine, and 2 grains of the extract of taraxacum, whiskey in liberal doses, and 3 grains of the muriate of ammonia every three hours; ice-bag to the head. The patient was fed on milk and BUSH's bovine.

Aug. 14th. Patient has had a restless night; constantly muttering. More quiet during the day. The bowels acted well, morning temperature 104° , evening 105.6° .

15th. The great restlessness continues. Apathetic condition increased. Can with difficulty be roused to protrude his tongue, which is now dry and covered with brown scales, sordes collecting on the teeth, tremors present, bowels moved three times to-day. Amount of whiskey increased, 3 grains of the muriate of caffeine added to each capsule. All fluids are drunk with avidity, especially the acidulated water, mouth and teeth cleansed with a mild solution of the chlorate of potash. Temperature to-day had been in the morning 103° , in the evening 104.2° .

16th. Morning temperature 102° , evening 103° . Still apathetic; muttering continues; activity during the night consists in removing the coverings. Urine free from albumin. EHRLICH's reaction still given.

20th *et seq.* Improvement discernible; nights more quiet; still apathetic; mouth cleaner than heretofore; headache ceased; bowels move twice a day; cough not so annoying. Temperature between 101.5° and 103° .

24th. Temperature was to-day 101° and 102° ; restlessness gone; can be more readily aroused; tongue moist and clean. Strychnine sulphate, grain one-twentieth given every four hours. EHRLICH's reaction no longer obtained.

Sept. 4th. Evening temperature fallen to 98° . All symptoms improved.

8th. Allowed scrapped meat, 1 teaspoonful three times a day, also egg, soft-boiled.

12th. Out of bed for half an hour. The diet is increased in quantity and variety. The whiskey, caffeine and ammonia are discontinued. On the 17th of September patient was allowed to go out of the house.

Case No. 5.—Mr. H. R., aet. 21, U. S., butcher, gave the following history:—After a thorough wetting in a rain storm he was taken with a pronounced chill, general muscular pain and intense headache, epistaxis, anorexia, constipation. Took to bed on the 20th of September. Patient was first seen on the 23d, when the above symptoms had continued.

Physical examination:—The patient is a robust young man, face flushed, tongue with heavy white coating showing indentations of teeth along the entire edge; chest organs normal; abdomen, tympany present to a mild degree; iliac pain marked, gurgling easily produced; epigastrium intolerant of pressure; spleen moderately enlarged. Urine, sp. gr. 1.020, acid in reaction. EHRLICH's reaction present. Evening temperature 104° .

Treatment:—Ice-bag to head. 2 grains *Fel bovis purificatum siccum*, 1 grain of the sulphate of quinine, and 2 grains of the extract of taraxacum, in pill form, every three hours, and 10 drops of the dilute nitro-muriatic acid, again well diluted, every two hours; whiskey in moderate doses, and fluids.

26th. Temperature ranges during the day from 101.5° to 103° . The patient feels comfortable, sleeps well and is but little disturbed, has but two movements a day, which are typhoid in character; tongue is cleaner, no disagreeable taste in mouth, abdominal tenderness diminished; five roseola spots appeared during the night.

30th. Temperature fell this morning to 100° and in the evening to 102° , near which points it continued for the next four days, when the forenoon temperature was normal,—followed by a normal temperature on the evening of the 5th of October. On the 9th of October, 1 drachm scrapped meat was given every four hours.

14th:—During the last twenty-four hours, six movements. Until the 19th the fever moderated, when the patient suddenly had a sharp pain in the abdomen, followed by a profuse bloody movement; face pale, pulse small and very weak, extremities cold. Hot bottles applied to extremities, $\frac{1}{3}$ grain of morphine hypodermically, and an ice-bag over the cecal region; absolute rest, even the use of the bedpan prohibited. Temperature fell to 100° . On the 20th the temperature rising, headache decidedly less, delirium not so pronounced, two large pulpy and tarry stools during the day.

23rd:—Condition improving, pulse still weak, roseola fading, two movements a day; gave, in addition to regular medicine, 3 grains of the muriate of caffeine every 4 hours; large quantities of whiskey, milk and strong black coffee taken. Urine still contains albumin and casts, in diminished quantity; di-azo-reaction still to be obtained.

On the 28th, di-azo-reaction disappears. The patient is beginning to recognize his surroundings. The nights are passed quietly, one movement a day.

July 2d:—Temperature low, cough diminishing, but few *râles* to be heard over chest, the air penetrates into the ultimate vesicles.

On the 7th, was allowed 1 drachm scrapped meat three times a day. This was soon increased in quantity, as it was well borne. On the 11th, patient complained of abdominal pain; physical examination revealed hardened fecal masses in sigmoid flexure, yet patient's bowels moved daily; a copious enema of oil relieved this condition. All medication with the exception of *Fel bovis* discontinued.

On the 18th, a general well-selected and easily digested diet given, patient out of bed for half an hour on the 23rd, and five days later out in the open air.

CASE No. 7.—Mrs. S., aet. 35, German, ailing for a number of weeks with general malaise, with difficulty performed her housework during the past week, headache pronounced, occasional epistaxis, anorexia, nausea, constipation al-

ternating with diarrhea, great weakness, chilly feeling occurring at irregular periods unaccompanied by sweating, hot flashes at times, some cough. The patient took to bed on the 10th of July and was first seen on the 12th. Physical examination showed that the thoracic organs were normal, slight tympanites present, right iliac region painful to pressure, spleen enlarged; a few red spots scattered over the abdomen. Tongue heavily coated, temperature in the morning 104.5° , in the evening 105° . Urine gave EHRlich's test, no albumen present. Ordered 10 grains of calomel; also, 3 grains of *Fel bovis purificatum siccum*, in capsules every 4 hours, and 10 drops of the dilute nitro-muriatic acid every 4 hours; whiskey, milk and BUSH's bovine.

The 13th, the bowels had moved several times, morning temperature 103° , evening 104° ; on the 14th, temperature ranged between 102° and 103° , near which point it continued for next three days; the nights are passed quietly, the headache has disappeared and the bowels move twice a day.

17th:—Temperature 100.5° and 102° , general condition satisfactory; by the 23rd, the temperature had gradually fallen to 99° in the morning and 100° in the evening; the patient feels very comfortable. On the 26th, evening temperature normal; the 30th, scrapped meat and eggs. August 4th, patient out of bed.

CASE No. 8.—Mrs. B., aet. 30, German, had been nursing a typhoid fever patient. Since one week had lost all ambition for work, was completely worn out, headache, anorexia with nausea, slimy taste in mouth, looseness of the bowels, chilly feeling alternating with feeling of great warmth, rest much disturbed during the nights. Took to bed on the 23rd of July, when physical examination showed tongue enlarged with the imprints of the teeth along its edge and heavily coated, the lungs and the heart normal. Abdomen not distended, pain and gurgling present in the iliac region, epigastrium also painful, spleen mod-

erately enlarged, roseola present. Urine, sp. gr. 1.022, acid, no albumen, di-azo-reaction present. Temperature in the morning 101.5° , in the evening 103° . Ordered calomel, grains 10; 3 grains of *Fel bovis purificatum siccum*, 1 grain of the sulphate of quinine, and 2 grains of the extract of taraxacum; in pill-form, every 4 hours; whiskey and milk.

24th:—Three large movements resulted. Temperature in the morning 102° , in the evening 104° , general condition more easy.

26th:—Temperature in the morning 103° , evening 103.4° , for the next four days temperature remained constantly at 103° both morning and evening. There were on an average two movements a day.

July 30th, no untoward symptoms developed. Morning temperature 101° , evening 103° ; up to the 6th of August the temperature fell gradually to 99° in the morning and 101° in the evening. Reached normal on morning of the 10th, and normal on evening of 13th.

On the 16th scrapped meat was given, and on the 20th patient was allowed out of bed.

Case No. 9.—Miss P., aet. 25, Canadian, had always been well until one week before seen, when extreme weakness developed, with general muscular pain, severe headache and heaviness of limbs, anorexia, irregularly acting bowels, and during the last night considerable delirium, with attempts to leave the house. August 2d, the patient appears with flushed face; it is with difficulty she protrudes her tongue, which exhibits a brown coating and a tendency to dryness; chest organs normal; abdomen distended; iliac pain and gurgling; spleen enlarged; two red spots present. Temperature 104° , morning and evening. Urine: EHRlich's reaction present, otherwise negative. She was given, first, 10 grains of calomel, which relieved the bowels. As the regular treatment, there was given 3 grains of *Fel bovis purificatum siccum*, in capsules, three times a day, and 10 drops of the dilute nitro-muriatic acid in considerable water every four hours; ice-bag to the head; fluid diet.

The 3d showed little change. Headache not so intense; morning 102.5° , evening 104° .

By the 5th, the restlessness had considerably diminished; a few more red spots appeared; spleen larger. Temperature fell to 100.5° in the morning and 102° in the evening of the 7th; feeling of comfort exists; sleeps peacefully. On the 10th, temperature 100° and 101° ; tongue beginning to clean. On the 14th, the morning temperature was normal, on the 18th, that of the evening. Was allowed scrapped beef and eggs on the 22d. The patient is beginning to ask for solid food; this was given two days later, when she was allowed to be out of bed. There was great weakness present, for which strychnine in one-twenty-fifth grain doses was given every three hours. Recovery uninterrupted.

Case No. 10.—Mrs. R., aet. 25, U. S., gave the following history:—Had been confined to the house for number of weeks nursing a sickly child; was worn both by work and watching, since ten days, drowsiness, headache, anorexia, nausea, constipation, general pains; epistaxis, considerable cough and some dyspnea. Examination showed a small and thin individual, anemic, cheeks flushed, tongue coated, no dullness present over chest, but sibilant and sonorous breathing heard over all portions; heart's action regular; abdomen: iliac pain, gurgle, and general tenderness present; spleen enlarged; roseola present. Temperature, 104.5° . Urine, 1.019, acid, no albumin, no casts; considerable mucus and epithelial cells present; EHRlich's test obtained.

Treatment:—First, 10 grains of calomel was given, with the desired result; followed by 3 grains of *Fel bovis*, 1 grain of the sulphate of quinine, and 2 grains of the extract of taraxacum, in pill form, every four hours; whiskey; and a teaspoonful of the following mixture every three hours: *Tr. opii camphorat.*, $\frac{3}{4}$ iss; *Ammon. muriate*, 3 i; *Tr. cubebae*, 3 ii; *Syrup tolu*, ad $\frac{3}{4}$ iii. As food, milk and bovine.

On Oct. 18th, the temperature was 101.5° and 104° ; had passed a restless night. The

temperature oscillated between 101° and 103° for the next seven days, during which time the headache ceased entirely; also the dizziness and the cough diminished greatly. There were from one to three passages a day. On the 25th, morning temperature 100° , evening 101° . It continued to fall until the 28th, when the morning temperature was normal, that of the afternoon 99.5° , which latter fell to 98.8° two days later.

Nov. 1st., there was a sudden rise during the afternoon to 103° , and the following morning to 102° ; this degree of bodily heat continued for five days, when defervescence again set in; continuing until the 17th, when the evening temperature reached the normal. On the 20th, scrapped meat allowed, and all medication ceased, except *Fel bovis*. Out of bed on the 22d; convalescence uninterrupted.

In reviewing these ten cases, one notices the atypical temperature curve of all; observation of the pulse-rates has not been recorded, as the pulse was artificial in consequence of the constant stimulation. The majority of the cases began, or came under observation, with a high degree of bodily heat. After the administration of *Fel bovis* for a few days, the temperature fell, ranging between 101° and 103° , seldom rising higher. There was at no time any antipyretic measure used, with the exception of cases Nos. 1, 2, and 6, and then only during the first day of treatment. One is also struck with the continued high temperature in the relapse of case No. 2, during which time *Fel bovis* was withheld for comparison. It is likewise noticeable that cases Nos. 2, 4, and 6 were severe ones, and that cases Nos. 3, 7, 8, and 10 were those occurring in women, run down either by overwork or continuous watching at the sick-bed, or both; the surrounding of these cases was also unhygienic. The administration of *Fel bovis* undoubtedly produced these favorable results by reason of two of its many functions. In the first place, by its action as a digestant it thoroughly transformed the intestinal contents, and, secondly, by its

antiseptic property rendered innocuous the fluids present in the intestine; thus, whatever absorption took place it was of a material that had been rendered unirritating to the system.

If bile is essential in the normal state of the system, it is of still greater importance to have it present during a disease in which all the functions of the various organs are held in abeyance; and it behooves the physician either to stimulate those organs to perform their natural functions, or, failing in this, to replace that which Nature cannot form for herself. Whether the *Fel bovis* passes from the stomach directly into the intestines, or whether it is first acted upon in the stomach, absorbed, and then secreted as human bile, it is impossible to state; but, nevertheless, its work is accomplished, as shown in the treatment of these typhoid cases with *Fel bovis*,—and furthermore in a vast number of cases of functional derangement and of pathological disorganization of the liver, treated with the same agent.

When a good quality of bile was used, there had been at no time any gastric disturbance produced. The best variety of *Fel bovis* that can be used is obtained by treating ox-gall with alcohol, by which means all proteid matter is precipitated out, and as a result no putrescible material remains to be administered, which might act as a poison, causing vomiting, pain, and purging. The *Fel bovis purificatum siccum*, as prepared by MERCK, has been used in these cases, and is now used to the exclusion of all other preparations.

To the ten cases just depicted can be added forty-eight cases treated with *Fel bovis* by my medical friends,—making in all fifty-eight without a single death.

In the future all cases of typhoid coming under the writer's observation shall be treated on the following plan: If seen early, a sufficiently large dose of calomel to entirely relieve the digestive tract of its contents; to stimulate at once, give in the first place alcohol, preferably in the form of whiskey; as additional stimulants, if needed: strychnine, caffeine, am-

monia, camphor, small doses of quinine, etc.; the dilute nitro-muriatic acid in a large quantity of water as a beverage; and *Fel bovis purificatum siccum* (MERCK'S), in doses of 2 to 4 grains, three to six times a day, in pill form or capsule, as the case requires.

The diet to consist of fluids, such as milk, beef tea, gruel, in small quantities frequently given. The milk should always be boiled, but taken either hot or cold according to the habit or taste of the patient. Preparation of beef extracts or meat juices can also be used, consulting the patient's palate. Typhoid fever, with no very grave complications, in an average individual thus treated, ought to end in recovery without a protracted convalescence.

In conclusion, it is to be mentioned that on one occasion only, namely, in case No. 6, at the time that the hemorrhage occurred, was an unexpected summons to see the patient made; otherwise the patients were seen but once in the twenty-four hours.

A line of treatment that will not necessitate one's being confined to the office in the evening, that will allow one to retire at night without the fear of being disturbed, and that will not require more than a daily visit, is to be highly commended, especially so when the disease occurs among the poor or those in moderate circumstances. There is absolutely no depressing effect to be counteracted, no collapse produced; extra stimulation is not required, and convalescence is not prevented or prolonged.

343 West 50th St., New York City.

THE TOXIC ACTIONS OF ALCOHOL.

By J. HENRY CARVER, M.D.

Clinical Assistant in Pathology and Medicine.

Alcohol, taken in larger quantities than the system can properly appropriate, unquestionably causes the development of a poison or poisons, and will produce effects similar in many respects to other acknowledged toxic conditions. That which the system can properly appropriate must to a great extent be gauged by the physical condition of the individual. In a healthy man no more than an

ounce in twenty-four hours of absolute alcohol can be completely oxidized into its final products,—carbon di-oxide and water,—without disturbing the general chemico-physiological process of the body; and this amount must be evenly distributed over the twenty-four hours. When these vital phenomena have been exceeded, the physiological limit has been passed. Even if the greater part of alcohol is consumed and thus ministers to the forces peculiar to the body, yet alcohol, by depressing functional activity, favoring degeneration, etc., may do more harm than can be counterbalanced by any good it may effect by the force it sets free during its destruction: even if taken in quantities too small to do harm, yet it cannot be classed as a food for the healthy. Granted, that dietetic doses check oxidation in the healthy and thus economize the blood and tissues, still, unless it can be shown that in health there is constantly an excess of consumption over and above that required by the body, such a diminution of oxidation could only result in lessening the amount of force set free and put at the disposal of the organs,—entailing of course diminution of the functional activity of the body.

A certain amount of alcohol—it is admitted—yields a given quantity of nervous, muscular, and glandular force. In convalescence from acute diseases, however, and in the sudden depression of the powers of life caused by the bites of venomous snakes, or from the loss of blood, or from serious injury, a quantity of alcohol which in a state of health would cause profound intoxication and damage to the system, is taken with impunity. In excess it injures and degenerates the tissues of all parts of the body and produces premature old age: there is a diminution of both physical and mental vigor. Even in a state of so-called health, when the effects of hard drinking are not apparent, they become at once evident upon the occurrence of illness or accident, when the constitution manifests its undermined condition and its diminished power to resist disease and to recuperate. Thus, drunkards

succumb to accident or illness which temperate men easily pass through; varied, repeated, and prolonged experience, and the testimony of army medical men, prove that troops endure fatigue and the extremes of climate better if alcohol is altogether abstained from. The experience of the celebrated Moscow campaign showed this; and a few years ago the Red River Expedition proved the same principle. During arduous marches it has always been found that, without alcohol, the health of the men is exceptionally good, but as soon as spirits are allowed, disease breaks out. Modern trainers recognize the fact that the power of sustained exertion and resistance to fatigue is best promoted by abstaining from alcohol. There can be no doubt that healthy persons capable of the fullest amount of physical and mental exertion without the stimulus of alcohol, not only do not require it, but are far better without it.

The real damaging and poisonous effects of alcohol are explainable also in another way than by its injurious contact with the mucous membrane of the stomach or its highly stimulating effects upon the liver and other cells. Alcohol is a "CHO" compound. These compounds produce only heat, energy, lubrication, and rotundity of form. The "CHNOS" compounds or proteid substances produce tissue and strength. The former are more readily oxidized than the latter. Now, when alcohol is taken into the system, the oxygen, which is always in limited supply, immediately attacks the "CHO" compound and neglects or sacrifices the more important elements of the body, viz., the "CHNOS" or proteid substances. This results in a disturbance of the process of oxidation, and gives rise to a condition somewhat identical with fermentative changes or a retrograde metamorphosis. In other words, we get the formation of a toxic principle or leucomaine, which is a basic substance formed in animal tissues during life, in contradistinction to the ptomaines, or products of putrefaction.*

* PORTER: Digestion, assimilation, and oxidation; their normal and abnormal conditions in relation to health and disease.—*Philadelphia Medical News*, Jan. 10, 24, and Feb. 28, 1891.

Leucomaines are formed continuously and constantly in the animal tissue side by side with the formation of urea and carbonic acid, and always at the expense of the nitrogenous or proteid elements. If the process is normal, they are eliminated by the kidneys; otherwise, they may be deposited in the tissues themselves, and act directly as poisonous elements,—the result indirectly being the sacrifice of the oxidizing powers of the system, and the diversion of its functions from the proteids to the "CHO" compounds, or those which produce no tissue,—among which alcohol is classed.

Alcohol is a poison, as its indulgence taxes the oxidizing functions of the system beyond their capacity to oxidize both the proteid and "CHO" compounds; and by neglecting the former, the poisonous bases known as leucomaines result, and it is the presence of these toxic bodies to which the various conditions found in alcoholized subjects can be attributed.

A man may drink only chemically pure water, eat only that food which is free from all adulterations, and breathe nothing but the purest air, and yet that man's excretions would contain poison. Whence do these poisons originate? They are formed within the body. They originate in the metabolic changes by which the complex organic molecule is split up into similar compounds; and many, though not all of these compounds are highly poisonous.†

It matters not whether the proteid molecule be broken up by organized ferments, germs, or by the unorganized ferments of the digestive forces, or by those still unknown agencies which induce metabolic changes in all the tissues;—in all cases poisons are formed. These poisons will differ in quality and quantity according to the proteid which is acted upon and according to the force which acts; still they will be poisonous. It is the disturbance between construction and destruction in the human economy which is followed by a corresponding disturbance in health; and

† VAUGHN and NOVY: "Ptomaines and Leucomaines." 1892; p. 289.

thus it is that the various phenomena resulting from alcoholic indulgence express in different degrees just how much the system has been poisoned by the toxic element.

The whole question might be reduced to one of digestion and assimilation. That is to say, the proteid elements being unoxidized and not assimilated, due to the closer affinity which oxygen has for alcohol, the system becomes poisoned by fermentative products and the body-tissue is destroyed. It is well known that toxic peptones injected into the circulation act as powerful poisons. They destroy coagulability of the blood, lower the blood-pressure, and in large quantities cause speedy death by their destructive influence upon the nervous system. When digestion is normal the peptones formed during digestion do not reach the general circulation. If they do reach the general circulation it is safe to assume that the resulting product is toxic in character. Certain febrile conditions originate in the system, and this may be due to either of the following causes:

1.—There may be an excessive formation of poisons in the body;

2.—The accumulation of poisonous matter may be due to deficient elimination,—just as the development of infectious diseases is largely dependent upon the condition of the person into whom the germs are introduced.

Two men may drink of the same water infected with the bacillus of Typhoid fever, and yet one will have the disease and the other will escape. The importance of the personal equation in acquiring infectious diseases, as well as in the different effects which alcohol produces, is fully recognized. That the difference in susceptibility may be due to the relation between the formation and excretion of these poisons generated in the body, is I think, highly probable.

Many of the nervous symptoms which accompany dyspepsia are due to the formation and absorption of poisonous substances. In some persons the tendency to the formation of poisons out of certain foods is very marked.

Thus, there are some to whom the smallest bit of egg is highly poisonous; with others, milk will not agree; and instances of this kind are sufficiently numerous to give rise to the adage, "What is one man's meat, is another man's poison."

It is clear that poisons are formed by deficient oxidation of the proteids of the body. This deficient oxidation arises, as has been said, from the affinity oxygen has for alcohol, resulting in an incomplete chemical destruction of the proteids in the body, from which the toxic leucomaines are derived. These micro-organisms may be intimately associated with, or may produce, a soluble chemical ferment, which by its action on different parts of the body produces the symptoms recognized as alcoholism.

41 East 33rd Street, New York.

COCAINE HYDROCHLORATE, in 4-per-cent solution, has been recommended in *otodinia*: 3 or 4 drops are instilled into the ear every fifteen minutes until relieved.

BEECHWOOD CREASOTE 4 drops, in lime-water 2 fluid ounces, has been lauded in "*sick stomach*",—a teaspoonful to be taken every quarter-hour until the stomach is quiet.

CHLOROFORM 1 part, dissolved in olive oil 8 parts, has been found useful in *earache*: 20–30 drops of the solution are instilled into the auditory canal, and the latter closed with cotton.

STRONTIUM LACTATE has been found beneficial in *albuminuria* by Dr. DUJARDIN-BEAUMETZ. He prescribes a diet of vegetables, milk, and eggs, at the same time. The following formula is employed:

STRONTIUM LACTATE	℥ iss
Distilled Water	℥ vii

Teaspoonful morning and evening.

RATIONAL DIETETICS:

STUDIES FOR "MERCK'S BULLETIN."

INTRODUCTORY.

The scientific investigation of the subject of dietetics is at the present time attracting considerable careful attention. In these columns both the practical and theoretical side of this important branch of the medical science will be impartially presented. All are invited to contribute.

A thorough and concise knowledge of the composition and comparative merits of the food-stuffs introduced into the body, both in health and disease, is of vital importance not only to the medical practitioner, but, also to the human race at large. The vast majority of medical men, as they leave their *alma mater*, are confronted, by the very first patient who presents himself or herself for treatment, with the question: "What is the best thing to eat in my present condition?" Yet the doctor is usually stunned by the demand, and by the fact that he has no definite knowledge upon the subject with which to answer this simple practical question.

Sir WILLIAM ROBERTS, in his treatise on diet,* writes: "The science of dietetics must, I apprehend, be mainly based and built upon an observation and a study of the practices and customs of mankind in regard to their food, rather than upon *a-priori* data supplied by physiology."

This assumption unquestionably is true in a large measure; at the same time, an exact and scientific understanding of the chemical and physiological laws which govern the human economy will help us intelligently to correct many common errors in diet. A careful and combined

study of the practical and chemico-physiological aspect of this important problem will develop the largest possible amount of true and valuable information.

The rational and scientific treatment of both pathological and functional problems is constantly demanding, for its successful management, a closer and more accurate chemical and physiological knowledge of the food-stuffs and their uses. The composition and comparative merits of the so-called native food-stuffs, in contradistinction to those artificially produced, must be thoroughly understood in all their details before an intelligent judgment can be rendered regarding the thousand-and-one manufactured products that are constantly being laid upon the physician's table. Often it is asserted that Nature has been improved-upon as regards the perfection in composition and digestibility; all of which is pure speculation until we are more thoroughly conversant with the utility of the original and native food-stuffs.

Fortunately the recent advances in our chemico-physiological knowledge and in the study of practical urinary analysis have placed us in possession of facts by which we can compute the practical utility of the food-stuffs with a wonderful degree of precision as to the probable results of their action, and we can now speak with certainty regarding the results to be expected. The truth of these assertions can be verified by carefully noting the changes in the urine from day to day.

The increase and decrease in the nutritive vitality of the system at large and the practical results obtainable from the food,

(*) Sir WILLIAM ROBERTS: "Collected Contributions on Digestion and Diet,"—p. 96.—Lea Brothers & Co., Philadelphia, 1891.

can be accurately read from the correct study of the composition of the urine.

FOOD VALUES.

By WILLIAM HENRY PORTER, M.D.

I.

THE ENERGY-TAX IMPOSED ON THE ANIMAL ECONOMY BY VARIOUS DIETS:—THE “MIXED,” THE “MEAT,” AND THE “VEGETABLE.”

The following table gives the average and comparative composition of the more generally used articles commonly rated as food-stuffs, and very closely represents what is ordinarily introduced into the system for the general maintenance of animal life :

With the composition of the food-stuffs before us and the probable amount of energy expended daily by the system, the nutrition and energy yielding values of all kinds of substances used as food can be accurately determined and their practical values ascertained.

Owing, however, to the complex nature of all food-stuffs, they must first be resolved into their component proximate principles. This is especially true in relation to vegetable substances, which are largely regarded as non-nitrogenous, in the minds of many, as compared with animal compounds; while the fact is, that almost all vegetable substances are largely nitrogenous in their composition and often contain a much higher percentage of proteid

[TABLE I.]
COMPARATIVE TABLE OF FOOD-STUFFS.

Kind of Food.	Water, H ₂ O.	Proteids, or CHNOS.	Starch, Sugar and Cellulose, or CHO.	Fat, or CHO.	Mineral Salts.
Human Milk.....	88.28	3.41	4.62	3.48	0.21
Cow's Milk.....	86.23	3.73	4.93	4.50	0.60
Skimmed Milk.....	88.00	4.00	5.04	1.80	0.80
Buttermilk.....	88 00	4.10	6.40	0.70	0.80
Cream.....	66.00	2.70	2.80	26.70	1.80
Cheese.....	41.84	29.23	....	23.84	5.09
Eggs.....	69.05	15.58	....	13.96	1.41
Average Meat.....	65.56	17.51	....	13.16	3.77
Fat Meat.....	54.22	15.99	....	28.22	1.57
Lean Meat.....	74.44	19.77	....	2.56	3.23
Average of Fish.....	75.57	16.98	....	6.20	1.25
Butter.....	11.70	0.50	0.50	87.00	0.30
Bread.....	36.00	7.50	53.85	1.15	1.50
Potatoes.....	74.50	2.25	21.92	0.15	1.18
Lentils.....	12.51	24.81	58.36	1.85	2.47
Beans.....	11.75	24.31	58.03	2.54	3.37
Peas.....	14.93	23.00	57.80	1.86	2.41
Wheat Flour.....	12.46	14.66	67.62	1.93	3.33
Rye.....	13.97	14.27	66.91	2.25	2.60
Barley.....	13.80	12.96	67.18	2.76	3.10
Oatmeal.....	12.05	12.15	67.00	6.55	2.25
Corn.....	14.80	12.50	62.65	8.80	1.25
Millet.....	13.14	12.35	68.35	3.60	2.30
Rice.....	15.14	7.47	75.69	0.80	0.90
Green Vegetables.....	88.00	2.50	3.25	1.75	4.50
Arrow Root.....	18.00	....	82.00	....	....
Alcohol (?).....	0.75	....	99.25	....	....

McKENDRICK* gives the following figures as expressing in round numbers the daily loss of energy by the system :

	kilogramme-metres.
Work of the Heart.....	50,400
Work of Respiration.....	11,700
Mechanical Work, eight hours.....	125,000
Equivalent of heat produced.....	620,000
Total.....	807,100
	=5,800,000 foot-pounds.

* HALLIBURTON, M.D.: "A Text-Book of Chemical Physiology and Pathology,"—p. 606. Longmans, Green & Co.; London and New York. 1891.

elements (albumin) than do meats. Therefore, for intelligent and accurate results, all our investigations must be based upon the fundamental proximate principles. In fact the multitude of compounds introduced into the stomach with each meal are simply resolved into the three classes of proximate principles.

As one hundred and thirty (130) grammes of pure proteid matter is generally accepted

as the amount required by the system to effectually carry on the daily constructive work of the body, this quantity is taken as the standard for all these calculations.

MOLESCHOTT'S MIXED DIET is composed of

Pure Proteid Substances.....	130	grammes.
Fats.....	90	"
Carbo-hydrates.....	330	"
	550	"

For the complete oxidation of these three food-elements it has been found that 130 *parts by weight* of proteid ($C_{72}H_{112}N_{18}O_{22}S$) *plus* 90 of fat ($C_{55}H_{108}O_6$) *plus* 330 of carbo-hydrate, require, in order to be properly transformed into urea, uric acid, creatinine, carbon di-oxide, water, and a sulphuric-acid-forming compound, an equivalent of oxygen, expressible *as compared with the above figures*, by the number of 36, 115 *units* (being the number of oxygen atoms required respectively *per molecule* of each of the above food-elements, *multiplied by* the respective number of parts by weight consumed, of each such food-element).

As a result of this oxidation 678,270 kilogramme-metres (4,905,926 foot-pounds)* of energy are developed.

Taking PORTER'S animal diet, composed of 130 grammes of proteid elements and 130 grammes of fats, and applying the same rules as was done with MOLESCHOTT'S more mixed diet, it was found that 38,415 units of oxygen were required to completely transform these two substances into their ultimate excretory products. As a result of this oxidation 734,890 kilogramme-metres (5,314,359 foot-pounds) of energy are developed. The difference in the amount of energy produced in these two instances—the MOLESCHOTT mixed and PORTER'S animal diet—is in about the same ratio as is the difference in the amount of oxygen used; while in both the amount of proteid matter consumed and the quantity of nitrogenous excretory products to be eliminated from the system are identically the same.

The actual difference therefore between these two forms of diet, so far as ultimate results are concerned, is almost *nil*. The true physiological difference between the two diets is found in the fact that Nature is compelled to expend considerably more energy in producing ferment-bodies with which to completely transform the starches and sugars into absorbable compounds, than is required for the emulsification of the fats,—the latter process being a less difficult task.

Neither one of these diets, however, is found to produce so large an amount of energy as is expended by the system daily—according to the computation given in MCKENDRICK'S table.

Taking next a diet composed exclusively of vegetables, by way of comparison,—such for instance as beans, which are among the most highly nitrogenous vegetable compounds,—it is found necessary to introduce into the system daily 916 grammes ($32\frac{1}{3}$ ounces) of beans, to procure anything like the same amount of energy that can be secured by using MOLESCHOTT'S mixed meat and vegetable, or PORTER'S pure meat diet.

Applying now the same computation to the proximate constituents of the 916 grammes of beans as was done in the previous instances, it is found necessary to use 47,191 oxygen units to completely transform the proximate principles constituting the beans into their ultimate excrementitious products. As the result of this oxidation 742,018 kilogramme-metres (5,367,016 foot-pounds) of energy are developed. This very closely corresponds, in the amount of working-power produced, with that obtained from the purely meat diet. But to obtain this result the system has been called upon to supply 8,776 more oxygen units, and just double the quantity of nitrogenous excrementitious matter has been handled by the glandular organs of the body. This naturally calls for a much larger expenditure of energy on the part of the physiological economy, and the result is an overtaxed condition of the oxygenating capacity of the system, followed by defective absorption, in-

* Attention is called to the fact that in Dr. PORTER'S original "Table of Comparative Diets" (*The Post-Graduate*; 1892, opp. p. 52) an error in changing the kilogramme-metres into foot-pounds was overlooked. It does not militate against the general comparison, as will be seen in the following computations.

complete assimilation and nutrition, imperfect oxygenation throughout the entire body; with a gradual development of abnormal physiological conditions and ultimately the development of absolute pathological lesions. As our knowledge advances it will become clear that a vast majority of our chronic diseased conditions—to say nothing of many of the acute manifestations—are clearly traceable to errors in diet. Further, they will be found readily amenable to treatment when the physician intelligently directs the diet of his patients, instead of leaving that important duty to the whimsical dictates of the individual's palate.

At one time, on account of the highly proteid nature of beans, it was supposed that beans and that class of food-stuffs would be the very best, most available and perfect of all nutriment. Practical usage, however, proved this class of foods to be a failure save in certain conditions of life.

In mountainous districts, and among a class of humanity whose life is spent mostly in the open air and in physical exercise, and in whom the actual expenditure of energy is not absolutely great, beans can be used and are found to yield fairly good results.

Now, with a clear conception of the percentage composition of these substances, together with our present exact chemico-physiological knowledge, it becomes perfectly explainable why the bean diet cannot be made to meet the actual requirements when put to the practical test.

Upon a bean diet which will yield the required amount of energy, double the amount of constructive material has been used, and the system has been greatly overtaxed and damaged by this overwork. If on the other hand the bean diet is cut down to the point where it will furnish just the required amount of proteid material,—or to 497 grammes (17½ ounces) of beans, which quantity will give exactly the required 130 grammes of proteid substance,—the consequent decrease in the starch, sugars, and fats causes the results of the oxidization of this smaller amount of beans to yield a

deficient quantity of energy. For the amount of energy obtainable from 497 grammes (17½ ounces) of beans is only 456,654 kilogramme-metres (3,301,823 foot-pounds).

Thus we have it demonstrated, upon sound chemical and physiological principles, that a bean diet cannot be so arranged that the system can obtain the requisite nutrition, and at the same time produce the required heat and energy, *and still use the smallest amount of oxygen and eliminate the smallest quantity of nitrogenous excretory matter.*

It also confirms what has been repeatedly found true in clinical experience among civilized races. But now it is absolutely known why this highly nitrogenous class of food-stuffs is not capable of being used in absolute practice to advantage.

By applying these same laws to all kinds of food-stuffs and carefully observing the changes wrought in the nitrogenous and excrementitious products eliminated in the urine, it need not be long before the regulation of the diet both in health and disease can be intelligently directed in harmony with the fixed laws which govern the minute workings of the human organism.

THE FEEDING OF YOUTH;—A CONSIDERATION OF THE VALUE OF SOME OF OUR FOOD-STUFFS AND THE PHYSIOLOGICAL LAWS GOVERNING THEIR USE.*

By JAMES WOOD, M.D.

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While much has been written on the feeding in infancy, little, if any attention has ever been given to the important problem of the proper food to be used after that period has passed.

The majority of parents and of others intrusted with the government of children, seems to possess the singular idea that, after the babe has been weaned either from breast or bottle, the dictates of its palate should be the standard of administration for the quality and

* Read before the regular meeting of the LONG ISLAND MEDICAL SOCIETY, Jan. 7th, 1892.

quantity of its nutrition. In other words, they acknowledge the superior intelligence of the babe on matters dietetic!

We may describe the period of youth to be from the 8th to the 20th year. During this time the most marvelous changes take place mentally, physically, and morally—it is the season of growth, activity, and development.

It is during this time that the different organs accustom themselves to the change in functions as they approach their full development, to the increased work thrown upon them, and to the changes in the nature of the food ingested by the individual for their nutrition. The osseous structures become more compact, firm, and capable of sustaining the muscular strain; the muscles increase in size and in capacity for overcoming resistance; the brain commences to respond to external influences, the inherent capabilities are awakened, and we have the birth of reason, intelligence, originality, and all the attributes which place man as a distinct class.

While infancy may be called the period of moulding, youth is certainly that of impression.

During the latter the organism is more apt to receive impressions than at any other time, and this is the period when grave errors are most likely to occur, which may seriously interfere with the proper evolution and lessen the chances of success in the struggle for the “survival of the fittest.” Many a young life, with capabilities for brilliancy, has been sacrificed, because of the ignorance of a few simple facts regarding food and its proper use.

It is sad indeed,—but the most important office, that of supplying nutrition to the youth, is too often intrusted to those careless or ignorant individuals whose store of knowledge is based upon what is told them by persons equally as ignorant, or to those eager for brilliant attainments even though the health be sacrificed, to a degree, to obtain them. This is almost the general rule in the present system of feeding in our boarding-schools.

It should always be remembered that the period for mental evolution ends but with the

life of the individual; while that for physical and glandular development ceases after a certain date.

The importance of the proper feeding of youth has been pointed out; let us therefore consider the nutritive value of the different food-stuffs, alone and in combination, which are best suited to the period of adolescence, and the chemico-physiological laws affecting them and the animal economy.

In speaking of foods, we will, for convenience, divide them into two general classes—the carbo-hydrates or “CHO,” and the proteids or “CHNOS” compounds. By this division we will escape the necessity of considering antecedents or substances allied to these general groups, and thus very much simplify their consideration.

These two great classes must be supplied to the animal organism continually and in sufficient amounts to meet the bodily expenditure, and thereby sustain the vital equilibrium or the harmonious adjustment of its atomic constituents. These two classes in common supply to the body heat, energy, lubrication, and rotundity of form; and yield, as the products of complete oxidation, CO_2 and water. The “CHNOS” class differs however in giving to the body, besides that which is enumerated above, elements for glandular, muscular, and—in fact—for all tissue-construction, and such compounds containing sulphur, as fulfill the office of ferments. The complete transformation of these compounds gives other elements besides the CO_2 and water, namely, urea, uric acid, creatinine and a molecule of sulphuric acid.

With these principal facts in mind, when we estimate the relative values of the two great classes, it will be seen of how much greater importance is the “CHNOS” group, which not only supplies all that can be obtained from the other class, but, in addition, those atomic elements necessary for the maintenance of a vital structure. Nature does not seem capable of joining the elements nitrogen and sulphur to the “CHO” group, thus forming a

A table of some of the known ptomaines may be prepared in the same way.

This gives us at least a theoretical explanation of many of our clinical phenomena. Many of these products appear in the condition known as leucocythemia, and the day is not far distant when its now unexplainable phenomena shall have become demonstrable.

It would seem evident, therefore, that the complete transformation of our food-stuffs into their final products is an important point and must guide us in the estimation of the proper quality and quantity of each to be used.

Before proceeding further let us look at another important fact in this connection. It has been found,* that 1 gramme of hemoglobin is capable of holding in combination 1.27 cc. of oxygen, and only that quantity. In a youth of 16 years this would amount to about 658 cc. of oxygen which is held by the hemoglobin when it becomes oxy-hemoglobin. The entire volume of blood makes a complete circuit of the body every 20 seconds; therefore in every 12 hours of ordinary exercise there is offered to the tissues at a given point 1,421,280 cc. of oxygen. Thus, we have a definite and constant quantity of oxygen in the blood at one time, which is available for oxidation of the food-stuffs into their final products. This must not be supposed as the quantity of oxygen required for complete oxidation, but the amount which the blood contains in combination. The amount given up to the tissues is governed by the arterial tension, rapidity of oxidation, etc., and these by the chemico-physiological activity of the living protoplasmic masses. Were it not for these provisions, so soon as the body exceeded a certain oxidative process, life would cease. There is therefore quite a margin for cases of emergency. Upon these and other facts, this law has been formulated, that the oxygenating capacity of the organism is a limited one.

These are a few of the laws which should command our attention when we consider the primary value of the food-stuffs as classes.

After passing through the process of digestion they are taken up by the body and converted into such compounds as are best suited for its use, and become part of the organism.

The body, however, does not remain in an unchanged condition: there are two great phenomena constantly taking place in each individual cell. Nature calls, as has been said, for such a quantity of proteid matter as, when appropriated by the organism, will meet the daily nitrogenous expenditure as shown by the excretion of the normal amount of urea. This intake of oxygen and food meets the demand on the part of the various cells for nutritive pabulum to carry on the anabolic or constructive processes of the body.

The second phenomenon commences with combustion or oxidation, and passes through a long series of destructive or katabolic phases to the formation of nitrogenous metabolites, "and this process is carried-on in an organism with an activity which is dependent on the activity of the living substance itself, and on the quantity of material supplied to it."†

The discharge of these products of katabolic metabolism is termed excretion. From a study of these bodies we are enabled, as it were, to glance back over the whole series of vital processes and ascertain in which one there exists an abnormality. How this can be done will be found by an examination of the urine.

Under the effects of suboxidation and consequent malnutrition, the urine is found to be scanty, high-colored, strongly acid, and of a specific gravity ranging from 1.020 to 1.040. The uric acid, urates, and oxalates are increased; while the urea is decreased in quantity. The bile-pigments and biliary salts are often present. Such urine will remain acid in reaction for days, weeks, or months before the alkaline transformation—normally occurring in from 24 to 36 hours—will take place. When the selection of our diet is in accordance with the laws designed to exactly sustain the equilibrium between protoplasmic activity, energy, and the other

* PREVER—"Die Blutkrystalle," p. 134.

† BURDON-SANDERSON—"Syllabus of Lectures," p. 37.

several vital phenomena, on the one hand, and the appropriation of nutrition on the other, the products of vital action will appear in the urine in their normal relation; and the alkaline transformation, with its accompanying chain of chemical bodies, will appear in from 12 to 36 hours. This may be considered as the proof positive that the organism is in a physiological condition.

Again, there must be ingested into the body such material which, when brought under the influence of oxidation, will yield energy. Energy is the force needed by the body to carry to perfection its functional work. This force is the result of oxidation, or the combination of oxygen with various unsatisfied atomic bonds or unstable compounds. We consider energy therefore as the expression of vital activity.

The amount of energy required daily has been estimated from the experiments tried on soldiers and sailors, and from these it has been found that during ordinary exercise the body uses approximately 734,890 kilogram-metres (5,344,359 foot-pounds). That the body may have for expenditure this amount of energy, there must be taken into and utilized by the organism from 10 to 12 oz. of the combined "CHO" and "CHNOS" food-stuffs; the proportion of each being estimated by the capacity of the system to effect a complete transformation of these bodies into their final products of oxidation. In this way it has been found that for the simplest diet the proteid and carbo-hydrate should bear the relation to each other as 1:1. If however the individual is obliged to do hard labor, the amount of albuminous food is much more than doubled, while the non-nitrogenous is much less—242 parts of the former to 169 of the latter.* The results of these observations are most important, and show that as the bodily exertions are more vigorous so the demand on the part of the system for albuminous food is increased accordingly.

A diet founded on these proportions yields

to the system the largest working power for the amount of food taken and oxygen used to carry the nutritive substances through their anabolic cycle of changes. This obeys the law which requires for dietary perfection that the atomicity of the food, the oxygen used, and work accomplished, bear a given relation to one another. With these proportions as our basis we are enabled to calculate to a nicety the amount needed of each constituent of the diet.

The quantity of food taken should be limited to such an amount as will, as near as possible, take the place of the tissue disintegrated. There seems to be a wide-spread habit of eating too much. People load their systems with all kinds of food, which, but for the indigestibility of a larger part of it, would result in speedy death. The requisite amount of food needed under different circumstances has been determined from very thorough experimentation, and if the quantity be increased above this amount, one of two phenomena will happen: the tissues will be stimulated to increased combustion, pushing out as it were, the old to make room for the new; or the oxidation of the food-elements into their final products will be incomplete—the health of the organism depending on the degree of its completeness and the ability of the organs of excretion to eliminate the products of retrograde metamorphosis.

In considering which of the food-stuffs should be used in the diet of our youths, all of the laws enumerated should command most respectful attention. The diet, generally speaking, should be of proteid elements, mainly, with a small quantity of carbo-hydrates.

The meats, fish of all kinds, (including the *crustaceæ* and *molluscæ*), eggs, milk, cheese, and all allied substances can be depended-on to furnish the best and most easily digested proteids. Proper cooking is of great importance, so that the food may be presented in an easily digestible form. The carbo-hydrates are supplied in nearly the requisite quantity by the natural fats of the proteid food-stuffs and

* DALTON'S Physiology, 1882, p. 132.

the small amount of vegetables and "greens" with which they are garnished.

If one turns to any of the good tables of the comparative composition of the food-stuffs, it will be noticed that in the average meat there is 17.5 per cent of proteids and 13 of fat; in eggs 15.5 "CHNOS" and 14 "CHO"; in cheese 29 "CHNOS" and 24 "CHO," etc. With a thorough knowledge of these proportions, and keeping in mind the ratio existing between the two classes and the amount required daily (10 to 12 oz.), it is found most difficult to arrange a vegetable diet so as to obtain the requisite amount of proteid elements without also ingesting more than the needed quantity of the "CHO" compounds—that is, without taking in more than the system can thoroughly oxidize.

The paramount reason why the vegetables are excluded so largely in dietary computation, is that their use requires an enormous outlay of oxygen, and necessitates the formation and handling, by the glandular organism of the body, of an excessive amount of incomplete nitrogenous excrementitious elements. In this manner we see the damage wrought to the system by a too large indulgence in, or exclusive diet of, cereal or vegetable compounds. Why a vegetable proteid should not be so easily handled by the system as one of animal origin seems strange; but the fact remains, and is probably founded upon the atomic formula which makes the vegetable proteid of higher nitrogenous atomicity and consequently requires more vital force and oxygen to digest, assimilate, and appropriate it.

The following table shows the supra-abundance of the "CHO" class, which must be handled by the system that it may get the requisite quantity of proteid elements from a diet of some of the food-stuffs most generally used:

[TABLE III.]

Kind and Amount.	Water.	CHNOS.	CHO.	Salts.
Potatoes 170 oz.	125.80 oz.	3.82 oz.	37.44 oz.	2.22 oz.
Bread.. 60 "	21.60 "	4.13 "	35.05 "	.72 "
Beans.. 16 "	1.88 "	3.89 "	9.28 "	.54 "
Oat Meal 30 "	4.05 "	3.75 "	20.70 "	.90 "
Rice... 60 "	7.80 "	3.60 "	48.00 "	.30 "

The following table, on the other hand, shows how a diet of the ordinary albuminous members of our food-stuffs gives nearly the requisite amount of both elements and salts:

[TABLE IV.]

Kind and Amt.	Water.	CHNOS.	CHNO.	Salts.
Meat 23 oz.	14.30 oz.	4.01 oz.	3.021 oz.	.86 oz.
Milk..... 112 "	96.05 "	4.04 "	10.50 "	.68 "
Oysters... 100 "	89.06 "	4.95 "	.50 "	2.00 "
Fish..... 25 "	18.80 "	4.25 "	1.50 "	.25 "
Eggs..... 24 "	16.56 "	3.72 "	3.36 "	.33 "

It needs but a glance at these tables to see which is the most practical and best suited for the organism, that its most perfect resultant action may be obtained, and physiological instead of pathological processes occur.

This is of vital moment: for there exists a certain relation between the imperfect workings of the vital forces, and disease. If the organism ingest food ill-suited for its needs, functional derangement will soon occur. Thus, it has come to be recognized by most physiologists and pathologists, that many of our chronic diseases which occur largely in late life are the result of a state of malnutrition and a consequent long-continued physiological derangement—rather than of an inherited vice. This functional perversion is largely due to the habit of feeding the growing child on a diet composed mainly of the starches and sugars. It is a most common sight to see our children eating freely of the confectioner's goods, and as they grow older desiring the rich pastries, marmalades, etc., until an almost passionate and insatiate fondness for this non-nutritious and highly stimulating diet is induced and they soon prefer this kind of food to the plain, nutritious nitrogenous compounds.

This stimulation soon fails to uphold the buoyancy of spirit and apparent good health, and a condition is left which becomes a great deteriorating factor.

When these individuals attempt to accomplish great physical or mental tasks, there is noticed a greater and more rapid expenditure of vital force than Nature intended. The demand on the part of the system for a strong stimulant is not fully met by the sugars

($C_6H_{12}O_6$); and the more active C_2H_6O (alcohol) is called into requisition. Thus future habits of intemperance often have their origin in this simple cause.

All of these factors leave the system in a much lowered condition and offer an organism which is a good pabulum for disease-germs and poisons of all kinds, and incapable of withstanding their inroads. One has but to call to mind the number of cases of tuberculosis following a continued state of malnutrition; indeed, this lowered bodily tone seems to be its chief etiological factor.

The general condition is better and the power to withstand disease seems to be stronger, in those organisms whose food is composed almost exclusively of the proteid or "CHNOS" food-stuffs. They are capable of greater concentration of energy, with its resultant physical ability and—in the higher class of mammalia—mental activity. It is but necessary to instance the contrast between the lives, habits, etc., of the panther (*felis pardus*) and the hog.

The liability of tuberculosis, or of any disease dependent on a lowered vitality for its growth or invasion, is much lessened in the proteid feeders. It is a well-known fact in laboratories, that, while tuberculosis can be readily ingrafted on animals whose food is largely or entirely vegetable, it is so with difficulty, and seldom proves fatal, in the carnivores. Both, however, are almost invulnerable to the infection if allowed their liberty and accustomed environment.

The rather general statement, that all our diseases, acute and chronic, can be traced to habits of improper feeding, originating during childhood or adolescence, is at the present time commanding recognition from the best chemical physiologists and pathologists.

The conclusions which may be drawn from the brief consideration of some of the chemico-physiological laws governing the vital activity of our bodies are as follows:

That the period of youth is the most important one;

That the different organs accustom themselves to change in function at this time;

That it is a period of rapid impression;

That we must divide food into its elementary divisions, namely, the "CHO" and "CHNOS" classes;

That the "CHO" class supplies to the organism heat, energy, lubrication, and rotundity of form;

That the "CHNOS" compounds supply heat, energy, lubrication, rotundity of form, elements for anabolic processes, and important constituents for the ferments;

That one class cannot be substituted for the other, nor have the same unit of value;

That the oxygenating capacity of the body is a limited one, and a too large ingestion of the more easily oxidizable, "CHO" compounds, will rob the proteids of the requisite amount of oxygen for complete transformation;

That the partial metamorphosis of the proteids is the cause of many disease-processes and of the formation of poisonous compounds;

That the degree of physiological perfection is determined by an examination of the urine;

That the body needs a certain approximately known amount of energy to carry to perfection its functional work;

That the amount of food ingested daily must be limited to a degree, where, other things being normal, no products of incomplete metabolism will appear in the urine;

That the proportion of the two classes of food-stuffs must bear a given relation to each other, determined by the degree of physical exertion;

That the atomicity of the food, the oxygen used, and the work accomplished, bear a given relation to one another;

That the body should depend almost exclusively on the animal albumins for the requisite amount of proteids;

That the oxidation of the proteids and their combined fats plus a minimum quantity of cereals supply all the energy needed, per diem;

That "an inherited vice," is an expression of ignorance, the functional perversion being

due rather to continued physiological derangement;

That many of our acute diseases of youth are due to malnutrition, producing a systemic condition unable to successfully antagonize the poison;

That the chronic diseases of late life are the result of a continued irritant, causing pathological changes in the protoplasmic elements;

That the use of alcohol— C_2H_6O —is often induced by the cravings of the system which has formed a habit for stimulants from the long use of sugar ($C_6H_{12}O_6$), starch ($C_6H_{10}O_5$), or allied substances;

That the proteid feeders withstand disease better, are capable of greater concentration of energy and mental activity, and live a longer and more successful existence.

—We should endeavor, in the great task of bringing up our children to manhood, to obey these laws of nature, and leave to the world a posterity which will not only be efficient in the propagation of our race, but the progenitors of such types of humanity as shall ever advance in the scale of capacity for physical, mental, and moral attainments toward human perfection.

162 St. John's Place, Brooklyn.

CLINICAL PAPERS

ON LIVE TOPICS.

ABORTIVE TREATMENT OF CHOLELITHIASIS.

By Dr. GEORG STICKER.

[Read before the General Medical Society of Cologne.]

—[CONCLUDED.]—

It has been determined with sufficient certainty, by clinical observation, as well as by post-mortem examinations, that hepatic colic is nothing else than a manifestation of the existence of obstacles in the organism which oppose the passage of the gall-stone from the bile-ducts into the intestine; in other words, it is an acute sign of impaction in which the essential symptom—pain—arises from irritation of the sensible nerve-fibres, caused by the opposing action (in the form of a convulsive contraction) on the part of the hollow organ which is being passed-through.

If we follow-up a gall-stone on its way from the gall-bladder to the intestine, the question arises, by what is the migration of the stones stimulated?—for the idea of active locomotion on the part of the inert concretions cannot be entertained at all. The question has thus far remained unanswered. Still there can be no doubt possible that the only expulsive forces operating on the stone are the pressure of the biliary secretion, the action of the organic muscular fibres in the bile-ducts, and, chiefly, of the muscular coat of the gall-bladder. It

is only a question of making the conditions clear under which those forces, in themselves slight, can manifest a sufficient efficacy. I think I found the way to do this.

As you know, the gall-bladder is a bottle-shaped organ with a wide body and a narrow neck; its position, when a person is in the upright posture, is such that the fundus is the lowest, the neck the highest, part. You also know that the ordinary gall-stone is lighter than water,—consequently certainly much lighter than the bile which, in the gall-bladder, usually has a specific gravity of 1.026–1.032. The stone therefore floats on the bile. You can now see that in the upright position of the patient with the gall-stone, the floating calculus lies in the narrowest part of the gall-bladder, and acts like a ball-valve,—permitting the entrance of bile from the ductus hepaticus and ductus cysticus into the bladder, but preventing the outward flow from the gall-bladder into the ductus cysticus and ductus choledochus.

You know THEODOR SCHWANN's law that a muscle manifests most power when in a condition of extreme tension. If now the walls of the gall-bladder have reached this condition of extreme tension from the continual inward and obstructed outward flow of bile; and if besides—and perhaps in consequence of a

full meal—a full head of compressed steam be turned into the mechanism which sets free the flow of bile from the bile-ducts into the intestines (heretofore obstructed by sphincter-tonicity),—and which mechanism at the same time innervates the propulsive muscular power of the gall-bladder;—it is then plain that when the stone is comparatively small, or—which is the same—the ductus cysticus comparatively wide, the muscular coat of the gall-bladder, being in the habit of propelling a fluid of the specific gravity of 1.030, can also propel a concretion of a specific gravity under 1.000, and that it can even overcome a relative narrowness of the ductus cysticus with the first gush,—supposing the stenosis to be based merely on elastic or organic opposition, and not on the absolute measurement of the duct when detoned. Even if the stone should be proportionately too large for this duct, it still does not follow that its exit from the gall-bladder is an impossibility. For, under the influence of oft-repeated extreme effort on the part of the muscular structure of the gall-bladder, there may be attained—under favorable circumstances—the same dilatation and hypertrophy of the bladder which—in fact—we find pronounced in so many autopsies, and which may even develop to such an extent as to present the picture of a *vessie à colonnes*,—a condition with which we are well acquainted in the urinary bladder, and whose analogue in the esophagus has recently been so convincingly and meaningfully described to us by LEICHTENSTERN, both anatomically and genetically.

A gall-bladder, hypertrophied in this manner by frequently repeated transient impactions of gall-stones, is capable, naturally, of overcoming considerable obstacles in the efferent duct, and even of gradually relaxing its anatomical texture, so that considerable widening of the bile-ducts and emigration of gall-stones (which, in some cases, have even been large enough to provoke acute intestinal obstruction with all its consequences) may obtain.

In order that the calculus may reach the

intestine under the action of the normal or increased propulsive forces, the latter must be at least as powerful as the sphincter tension which shuts off the ductus choledochus at the papilla of VATER; or, this tension must be removed. If we consider that the pressure-power of the normal gall-bladder, as well as the secretion-pressure of the bile, is equal—according to FRIEDLANDER AND HEIDENHAIN—to 200 millimetres [8 inches] water-pressure, at the most, while the resistance of ODDI's sphincter muscle is equivalent to 675 millimetres [27 inches], it is plain that the hypertrophy of the muscular structure of the gall bladder would have to reach a considerable degree before it could overcome that resistance. From ODDI's investigations we have learned, however, that in the duodenum ends the nerve which keeps the sphincter muscle in tonic efficacy, *until*, by the entrance of the contents of the stomach into that part of the intestine, a release of the closure of the bile-ducts is effected through the agency of other nerves. It can be seen from this that the most favorable conditions, both for the normal evacuation of the gall-bladder, as well as for the passage of gall-stones, obtain during the period of transition from gastric to intestinal digestion: for then the pressure of the bile is greatest, and the action of the sphincter least. The well-known fact, that hepatic colics occur most frequently, most severely, and—as concerns the passage of the stones—with the greatest prospects of success—three or four hours after the principal meal, agrees with these statements.

In order to utilize the physiological process of the spontaneous expulsion of gall-stones, or the hepatic colic, and to lead these on to their normal goal, scientific therapy will have the task, on the one hand, of assisting and strengthening the propulsive powers; and, on the other, of eliminating the obstacles as much as possible. It will direct the employment of adjuvant agents to take place in that period of time during which, according to experience, the obstacles in question operate the least—

and when, consequently, the propulsive forces have the freest play.

—Of the remedies at our command for developing the hepatic colic up to the expulsion of the gall-stone, or for effecting the passage of stones without colic, I will mention but one, because its action in this direction seems established and is intelligible to me; whereas the action of other similar remedies (Carlsbad-cure; oil-cure), at least so far as their mechanism is concerned, is not clear.

The remedy I mean is BELLADONNA, the use of which, heretofore, was limited to merely relieving the pain of hepatic colic, and which was preferred to the much-lauded opium, even for this purpose, only by a few—but by the best—authorities. We find it recommended for instance by TROUSSEAU in the HOTEL-DIEU lectures, where belladonna, ether, and chloroform are alone mentioned, to the exclusion of opium; worthy of remark is also the fact that HUFELAND, who—by the way—places opium above all other medicines, specially deprecates the use of the latter medicament in hepatic colic.

As for the practical significance of belladonna as a cholelithofuge, it is a fact that, if regular attacks of colic be treated with belladonna, concretions will very often be found in the stools on the following days; whereas, if the attacks of colic be subdued with opium, even the closest examination will only rarely detect a stone in the feces. Furthermore, the opium therapy will have to be repeated more frequently than the belladonna treatment, because the attack mitigated by means of opium is usually followed shortly by several others; while very often a long time elapses after an attack treated with belladonna, before another follows it.

Herefrom it is already sufficiently clear that the belladonna is more than a mere palliative or anodyne. The latter property it possesses even in a much smaller measure than opium or morphine, which drugs are indispensable in the severest cases—where immediate and certain *relief of pain* is the chief indication.

How little of an *anesthetic* belladonna is in the real sense, is known to oculists—who never employ atropine locally in painful conjunctival affections, but mostly cocaine; still, how powerful an *anodyne* belladonna is, this class of physicians know fully as well; for they recognize no better mitigant in painful ocular affections accompanied with an irritation of the iris sphincter than belladonna or atropine, whose action is in fact based less upon a narcotizing influence on the ciliary-nerve terminations than upon the relief of these terminal filaments from the irritation by spastic muscular contraction.

The same influence as is exerted by belladonna on the sphincter of the iris is exerted on the sphincter of the pylorus in certain cases of gastric pain, which we must designate as *genuine* gastric spasm, and which we may compare to the painful spasm of the sphincter ani, of the eyelid, etc., arising from an anal fissure, from palpebral fissure, etc. The antispasmodic action of belladonna in certain intestinal colics, intussusceptions, and hernial strangulations,—in which the older physicians have always preferred belladonna to opium,—is well known; the same in ischuria spastica, and in spasm of the cervical muscles of the uterus. But while belladonna exerts a paralyzing influence on convulsively excited sphincter or circular muscles, it exerts a contrary action on the longitudinal fibres and detrusors of the flat muscular system,—as may be inferred from its action in paralytic conditions of the detrusor urinæ (retention of urine after the use of morphine) and of intestinal peristalsis (atony of the intestine).

From this theory of the action of belladonna, the explanation of the observations, before mentioned, on the action of belladonna in the expulsion of gall-stones, becomes evident; and from the said observations and from the insight now gained into the *modus operandi* of the remedy, the following indications for the employment of belladonna in cholelithiasis may be adduced: Appearance or approach of a colic, or impaction of several

days' duration with frequent attacks of colic; absence of every symptom which might suggest complication of the colic with deeper tissue-lesions,—that is,—which might suggest an atypic course of the same; absence of symptoms of collapse,—such as appear in consequence of intense pain (when morphine is indicated).

Even if the abortive action of belladonna should fail to manifest itself in the first attack of colic or even in a larger number of attacks, we need not therefore refrain from the further use of the remedy, but may reasonably expect its repeated administration to foster the needed hypertrophy of the tergal muscular strata.

The administration of belladonna may, of course, be accompanied by any or all the proper adjuvants (warm cataplasms, baths, etc.); and it must occasionally be followed by a purgative. It is employed either in the form of an infusion (1-1.5(!): 150), of which a table-spoonful is to be taken every $\frac{1}{2}$ -1 hour during the attack; or in the form of an aqueous solution of the extract (1-1.5:200),—20 drops every $\frac{1}{2}$ -1 hour. The latter will be preferred particularly when we wish to intrust an intelligent patient with the remedy in advance,—to provide for the case of an attack coming on.

Between the individual attacks, DURANDE's mixture and occasionally a rigid Carlsbad course of treatment should be employed.

—As the third indication in cholelithiasis we designated, rendering the concretions innocuous. The fulfillment of this indication coincides partly with the palliative treatment of the colic (that is to say, with the prevention of collapse by means of administering ether, camphor, etc.; with combating the pain by means of anodynes,—opium, etc.,—hot compresses, and local blood-letting by means of leeches,—which is sometimes extremely efficacious when even morphine injections and chloroform inhalations fail), and partly with the treatment of irregular cholelithiasis,—the discussion of which is out of place here.

UTILITY OF DRUGS IN EARLY PHTHISIS.

By J. C. THOROWGOOD, M.D., F.R.C.P.

Read at the recent Annual Meeting of the BRITISH MEDICAL ASSOCIATION.

The discovery of the tubercle bacillus, and the way in which it appears to be associated with the progress of the more serious forms of tuberculous disease, has tended to cast drug treatment rather into the background. The ancient treatment of phthisis pulmonalis by demulcent drinks—such as comfrey or mullein infusion,—and by such remedies as paregoric tincture and oxymel of squills, we now regard with feelings allied to pity, and think we have made some progress in drug healing. We look with more respect on the tar-water treatment of consumption highly commended in 1744, and Sir A. CRICHTON's treatment of the disease by continuous inhalation of the vapor of boiling tar mixed with potassium carbonate to neutralize the acetic acid, is a method often advantageously pursued in the present day.

In hospital practice, especially among out-patients, one is compelled to do the utmost one can with drugs. The patients are poor, often hard-worked, and they cannot obtain the advantages in the way of change of air and rest that fall to the lot of the more affluent classes. In the poorer classes phthisis is often brought about by some neglected inflammatory mischief in the first instance,—such as bronchitis, pleuritis, and sometimes pneumonia. In such cases drug treatment has a good chance to distinguish itself, and it is to cases of this kind that I would specially draw attention, as from such my experience has been largely drawn.

A brief reference to two patients in Victoria Park Hospital some years ago will guide as to the line I wish to take, and will be suggestive to any who may make remarks on this paper. One day I found two new cases in the four-bedded ward, both young men. One came from Bethnal Green with a history of long winter cough and bronchitis, signs of consolidation at one apex. The other, a youth, who carried his story in his face—cough, with pro-

gressive emaciation coming on gradually from no known cause, slight hemoptysis, high temperature, and rapid breaking down in the upper part of one lung, came from a high and dry part of Oxfordshire, a district that I well know. I remarked to my assistants that the first case would leave the hospital and return to Bethnal Green much relieved. The case of the other patient would not be reached by drugs but would go from bad to worse; and so it proved, for he died in the hospital.

Let me place before you another case in which from the first I felt sure medicine would prove useless. A young lady, aged 17, living in Scotland with every comfort around her, was much cast down by the rather sudden death of her mother. Gradually cough came on. The temperature rose from 101° to 105° ; pulse 130. The urine contained excess of urea, but no albumin. I saw this girl in January, 1886, in a most healthy house in a high dry part of Yorkshire, and found the symptoms as above given. There was no marked dulness, but the left chest was full of crackling *râles* and the right lung had uneven bronchial breathing, evidently soon going to follow the left. Catamenia suppressed. Five grains of quinine sulphate served to reduce the temperature for a time. Nothing, in my opinion, could have been more unpromising, and I could only indorse the opinion that the case was one where we could not have much hope. Privately I remarked to the doctor in attendance that he would not find any drug that would have the least effect in controlling such a case as that before us. Both lungs were full of *râles*, there was slight hemoptysis, and diarrhea was very troublesome. We of course did our best to encourage the patient and her friends, and prescribed iodoform pills; but in March the young lady died. The case was not to be reached by drugs in our present state of knowledge.

I have no more to say about the drug treatment of acute tuberculosis, and willingly quit the subject.

It is in cases of *catarrh at the lung apex* due

to cold draught or to respiration for some time of close vitiated air that drug treatment appears to advantage. That peculiar catarrhal state of the apex which has been described as pulmonary cachexia, and which is close on the borders of tubercle, and is due to a degenerated condition of the epithelium from constant respiration of bad air, improves rapidly when the patient is removed to a pure air. Where, however, we cannot give the patient the advantage of removal we have to do our best with drugs. Specially I would draw attention to the good results that may be obtained in such cases from the use of hypo-phosphites. The oil of phosphorus given in small doses in capsules is very apt to cause nausea, but this objection does not apply to the hypo-phosphites, and at the same time these salts contain phosphorus in such an active condition that they burn readily when heated in a capsule over a flame.

The result of some twenty-five years' experience in the use of the hypo-phosphite salts has led me to the following conditions based on records of cases. Hospital out-patients who came with cough and expectoration, perhaps blood-stained at times, and who presented *râles* at the lung apex, continuing there after some amount of bronchitis due to cold had been overcome by various remedies, improved in a way that surprised me on giving them 5 grains of sodium hypo-phosphite three times a day. Plain water or calumba infusion were the vehicles usually employed in giving the remedy. The patients got better, and some would return in perhaps six months' time with the same symptoms and signs again, and would again improve under the hypo-phosphite treatment. In cases of persistent consolidation of lung after pneumonia I have in very many cases seen absorption of effused products proceed speedily under treatment of sodium hypo-phosphite; this, too, in cases where ordinary treatment had been followed to no purpose for some time. Cases of this description that appeared doomed to a speedy death by phthisis I have seen clear up and recover perfectly on

5 grains of sodium hypo-phosphite given three times daily for five or six weeks. In cases of pleurisy with effusion, the hypo-phosphite salts seem to me to have no effect whatever. In cases where the pleura appeared to have been roughened by deposit so that friction sounds of loud and coarse character were very audible, I have seen all these sounds vanish and the patient do well under the sodium hypo-phosphite.

Before the days of the tubercle bacillus I had learnt that there were cases of phthisis attended with fever and rapid in progress in which the hypo-phosphite failed in a way that I could not understand. I believe from more recent observation that these were cases where the tubercle bacillus was too strong to be overcome by a medicine whose action lay mainly in promoting the absorption of inflammatory products.

Many years ago Dr. GRAVES, of Dublin, as well as Dr. RUSH, of Philadelphia, and Dr. MUNK, of London, laid stress on the use of *mercury* as an absorbent in cases of phthisis. Mercury, says GRAVES, is of use where the affection of the lung is local and the system generally not affected. In scrofulous pneumonia, rather than in tuberculous disease, the mercury is said to act with most advantage. How far this is true I will not now stay to inquire, but the idea in giving mercury was to get rid of inflammatory deposit and so prevent phthisis. We now say, get rid of inflammatory deposit and so take away what may prove a nest for the growth of tubercle bacilli.

Whether it be phosphorus or a hypo-phosphite that is given, I believe a process of fatty change and liquefaction of the effused product is set up and absorption follows. Sometimes the process seems to me for a time attended with some amount of increase in temperature, and when this is the case it is well to reduce the dose of the drug or give it at longer intervals. In recurring hemoptysis, too, the hypo-phosphite must be used with care. The most active in liquefacient power is potassium hypo-phosphite.

The lime hypo-phosphite—which is milder in its effects than the other salt—acts often remarkably well in cases where secretion is profuse. The lime salt checks profuse sweating and also diarrhea. The dose should not exceed 5 grains, and it answers best when given with 5 to 10 drops of the syrup of lime, glycerin, and sometimes syrup of tolu.

Very rarely indeed have I found, when the hypo-phosphite fails to remove an apex catarrh or inflammatory deposit, that I gained by changing to such medicines as tartarated antimony in very small dose, potassium iodide, or some form of mercury. Once or twice a change of treatment has been eminently unfatisfactory; in one case clearly disastrous.

Passing over such drugs as the mineral acids, creasote, and guaiacol, which are often useful as tonics in some cases, I must say a word on the use of the inhaling respirator. This method of treatment I believe to be trustworthy and efficient. The use of the respirator with iodoform and eucalyptus oil, as devised by my colleague, Dr. VINCENT HARRIS, has proved most useful in the treatment of early phthisis.

The patient should, after clearing his lungs as much as possible in the morning by cough, wear the perforated zinc respirator, and keep it on for an hour; again, in the middle of the day, and a short time at night. Nothing appears to me so useful as iodoform with ether, alcohol, or eucalyptus oil. This is soothing and excites no cough. Next to this comes the best German creasote, with or without alcohol. Thymol, carbolic acid, and iodine are all inferior to the above.

Next to these inhalations—I would not say inferior to them—I place persistent, and even severe, counter-irritation as a means of treatment too much forgotten. We have seen a remarkable arrest of phthisis of an active kind in a young woman in the Victoria Park Hospital from croton liniment used eight years ago. The linimentum terebinthinæ aceticum of St. JOHN LONG is still deserving of a high place, especially in chronic disease of the lung base.

NEW REMEDIES,

AND NEW LIGHT ON OLD ONES.

CHLORINE IN TYPHOID FEVER.

Dr. YEO (*Gazz. degli Ospit.*) recommends *free* CHLORINE as the best agent for the antiseptic treatment of enteric fever. His method of administering it is as follows: First, CHLORINE is generated in a bottle by pouring pure hydrochloric acid (40 drops) upon potassium chlorate (2 grammes [$\frac{1}{2}$ dr.]); after 2 or 3 hours, a little water is added, the bottle tightly corked, and well shaken; enough water is added to make the whole measure 300 cc. [10 fl. oz.]; finally, 2 grammes [$\frac{1}{2}$ dr.] of quinine hydrochlorate and 30 grammes [6 fl. drs.] bitter orange-peel syrup are added. In this manner the author says we obtain an almost pure solution of free CHLORINE. According to the severity of the disease, 2 tablespoonfuls of this mixture are administered 2, 3, or 4 times a day. Most favorable results are claimed for this treatment.

CORNUTINE AS A HEMOSTATIC.

Dr. W. A. MEISELS, in *Pester Medizinisch-chirurgische Presse*, lauds CORNUTINE as an efficacious hemostatic in hemorrhages from the genito-urinary organs. He regards it as the most active constituent of ergot (*Secale cornutum*), most promptly effecting contraction of the blood-vessels and of the flat muscles; and describes it as a brownish-gray amorphous alkaloid, scarcely soluble in water. CORNUTINE CITRATE and CORNUTINE HYDROCHLORATE are described as more soluble.

In rabbits the vascular contraction, consequent upon the employment of CORNUTINE, appeared to the same extent when the drug was administered *per os* as when injected directly into the circulatory system; but in the former case the action was more tardy in its manifestation.

Doses of 1-2 milligrammes perceptibly constricted the blood-vessels, particularly those of the bladder and uterus, and provoked decided

and increased rotatory or longitudinal movements of the bladder and uterus, with distinct contraction of their walls; the surface of these organs became distinctly paler.

After concluding his experiments on animals, Dr. M. employed CORNUTINE also in human beings,—especially in hemorrhages from the urinary and genital organs, of both males and females. The dose was 0.01-0.015 gramme [$\frac{1}{6}$ - $\frac{1}{4}$ grain] per day, which—it is reported—was taken without repugnance, and occasioned no disturbance.

CORONILLA VARIA AS A HEART-TONIC.

The distressing affection known as paroxysmal tachycardia, or “rapid heart,” has unfortunately not proved so generally amenable to treatment as could be desired; but Dr. POULET, of Plancher-les-Mines, has recently found a remedy in a little-known plant indigenous to Alsace, which appears to exert a rapid and beneficial influence over the paroxysms. The plant in question is the CORONILLA VARIA, or *Faucille*, which, like some other species of coronilla, is sometimes used as a household remedy,—being considered to have cathartic and diuretic properties.

Some recent researches by MM. SPILLMANN and HAUSHALTER on a closely allied species—*Coronilla scorpioides*—showed that that plant acts as a powerful heart-tonic, causing an increase in the arterial tension and in the fulness of the pulse, exciting diuresis, and diminishing edema and dyspnea—acting, in fact, very similarly to digitalis.

Dr. POULET was induced by these researches to make trial of CORONILLA VARIA in heart cases. He employed a tincture made from the entire plant (1 in 5); also a powder made from the flower. The *daily* dose of the tincture—according to *The Lancet*—is $\frac{1}{2}$ -1 dram [2-4 gm.], that of the powder, 15-30 grains [1-2 gm.]. These preparations, though they

have a strong characteristic odor, are not nearly so disagreeable to the taste as those of *Coronilla scorpioides*. Details are given of two very severe cases in which these preparations of *CORONILLA VARIA* gave almost immediate relief. M. POULET recommends this drug also in other heart cases where *digitalis* has been used, and where it seems to have been given for too long a period, or, as sometimes occurs, where it has begun to act on the gastro-intestinal canal.

HELENIN IN LEUCORRHEA.

Having been assured that HELENIN is almost entirely void of toxicity, Dr. M. HAMONIC (*Journal de Médecine de Paris*) experimented with this substance in blennorrhagic urethritis—both acute and chronic—as well as in simple urethral catarrh and bulbous urethritis, with negative results in all. On the other hand, however, he found it to exert a favorable action on leucorrhea associated with catarrhal endometritis.

The author considers it useless to administer (as has been done by others) as much as 4 centigrammes [$\frac{2}{3}$ grain] in twenty-four hours: 1 or 2 centigrammes ordinarily suffice. Sometimes the HELENIN occasioned slight diarrhea, tenesmus, heaviness in the stomach, and cramps. The following is his formula:

Helenin (crude) }	..... of each, gr. xv [1 gm.].
Inulin	
Milk-sugar..... a sufficient quantity.	
Divide into 100 pills!—Two to four daily.	

HEMOL AND HEMOGALLOL AS HEMATINICS.

The question of the assimilation of iron and of its elimination from the organism, after the administration of ferruginous preparations, has not as yet been satisfactorily solved. For this reason Prof. KOBERT, Director of the PHARMACOLOGIC INSTITUTE OF DORPAT UNIVERSITY, assisted by a number of his pupils, gave his attention to this question,—one of great importance to clinical medicine. The experiments of these investigators—reported in part, in the Seventh Part of the “Trans-

actions of the Pharmacologic Institute at Dorpat” (Stuttgart, 1891)—show that the only reliable index of the absorption of iron into the human economy is its *elimination with the urine*; inasmuch as the excretion with the bile and intestinal fluids, and from the intestinal epithelium, is beyond observation. Practical medicine must therefore make the following demands upon ferruginous preparations:— firstly,—after their internal administration they must *reappear, in part, in the urine*; secondly,—they must not appear in that fluid immediately, but *only after the lapse of a few days*; thirdly,—they must not appear in the urine in inorganic form, but as a *definitely-formed urate of iron*.

Such of the usual preparations of iron as the saccharated oxide, the citrate, or the saccharated carbonate, by no means meet these requirements; because, when introduced hypodermically or directly into the blood, they permit the iron to be voided with the urine to the extent of 40%, in *unchanged* form, and when introduced per os, cause no increase in the excretion of iron in the urine. A positive proof of the assimilation of these and other officinal iron-preparations by the human organism, can therefore not be adduced. Pure hemoglobin, as also hematin mixed with blood-albumin, answer the above requirements better. These preparations are undoubtedly absorbed,—the hemoglobin to the extent of 17%, and the hematin in 10–16%; for an amount of iron corresponding to these ratios gradually appears in the urine.

However, Prof. KOBERT has succeeded, by the action of reducing agents—such as zinc-dust and pyro-gallol—on the coloring-matter of the blood, in producing two compounds of iron possessed of still greater absorbability than those last mentioned. The product obtained by means of the zinc-dust has been named HEMOL; that produced by the action of the pyro-gallol, is termed HEMOGALLOL. Of the latter, a quantity corresponding to 21.6%—that is, more than of any other iron-preparation ever before tried—was slowly elim-

inated with the urine in the course of several days.

HEMOL and HEMOGALLOL have already been employed in chlorosis, and with excellent results; no disagreeable symptoms whatever were observed. The main advantages of the two new hematinics are the following:—

Firstly,—they are borne unusually well even by the stomachs of the anemic, and are doubtlessly absorbed in these patients. Secondly,—they are more easily transformed into blood-coloring-matter by the organisms of debilitated individuals than all other ferruginous preparations.

HEMOL is a blackish-brown powder; HEMOGALLOL, a beautiful reddish-brown powder. The dose of either is 0.1–0.5 gramme [$1\frac{1}{2}$ – $7\frac{1}{2}$ grains], 3 times daily,—in wafers, or enveloped in Japanese bibulous paper (“Usego”). Healthy persons bear 1–2 gramme [15 – 30 grain] doses of HEMOGALLOL without the slightest disturbance.

For the convenience of patients, both preparations are obtainable also in the form of chocolate tablets, each of which contains a quantity of the medicament corresponding to a little over 1 milligramme [$\frac{1}{64}$ grain] of iron,—1 to be taken 3 times a day, 15 minutes before meals. Of course, the co-existent intestinal disturbances—constipation, etc.—of chlorotic subjects must be simultaneously treated by suitable measures.

HEMOL and HEMOGALLOL both are found in the markets as preparations of definite and uniform composition. In the *former*, a very small percentage of *zinc* is traceable; this is stated to have been retained *intentionally*, for the reason that—according to recent investigations—this metal, as present in this compound, while exerting neither an escharotic nor an emetic action, efficiently removes certain occasional minute gastric and intestinal lesions, which, if allowed to continue, are capable of developing into ulcers.

ICHTHYOL IN VARIOLA.

Dr. R. PELLEGRINI (*Terapia Moderna*) has employed ICHTHYOL with good result as a top-

ical application in the pustular stage of variola. It was used in 3–5–10% solutions, and applied 2–4 times a day, by means of a brush, over the pustules as well as over the surrounding skin. According to the author, this treatment hastens the drying of the pustules, checks extensive suppuration, and prevents pitting.

METHYLENE BLUE IN ACUTE NEPHRITIS.

The bactericidal properties of METHYLENE BLUE and its elimination from the organism with the urine, viewed in connection with the hypothesis of the partly microbic nature of nephritis, occasioned a trial of this medicament in three cases of incipient Bright's disease, by Dr. NETCHAÏEW, of Moscow. It had good results (*La Sem. Méd.*). His patients took daily 3 wafers, each containing 0.03 gramme [$\frac{1}{2}$ grain] of METHYLENE BLUE. In each case the blue coloration of the urine and a notable increase in diuresis were observed as early as the next day; and, within a few days following, the quantity of urine—which was 850–900 cubic centimetres [$28\frac{3}{8}$ –30 fl. oz.] when the treatment with METHYLENE BLUE was begun—increased to 3200–3600 cubic centimetres [107 – 120 fl. oz.]; at the same time all the morbid phenomena—albuminuria, urinary casts, ascites, edema, cardiac and pulmonary symptoms, etc.—rapidly improved and soon disappeared entirely. The author claims *complete cures* in his three cases at the end of 17, 12, and 9 days, respectively.

Although the favorable action of the medicament, in these three cases, coincided with a very considerable augmentation in the excretion of urine, METHYLENE BLUE does not appear to be a diuretic, properly speaking: Dr. NETCHAÏEW administered it to patients with dropsies consequent upon cardiac and hepatic affections, and never observed the slightest increase in diuresis; he concludes, therefore, that in acute Bright's disease, METHYLENE BLUE acts on the kidneys *peculiarly* in the quality of a microbicide, and that the augmented diuresis is a phenomenon secondary to this action.

OSMIC ACID INJECTIONS IN GOITRE.

Dr. AUERBACH (*Méd. Moderne*) injects 0.005 gramme [$\frac{1}{12}$ grain] of OSMIC ACID, dissolved in distilled water, into the thickness of the tumor once every two days; he also resorts to *massage* of the part—daily 15 minutes; and administers Potassium Iodide internally. As a result of this treatment, the author claims to have observed, at the end of 3 weeks, a diminution in the size of the tumor, and the disappearance of the subjective symptoms.

POTASSIUM BI-CHROMATE IN HEMATO-CHYLURIA.

In a paper recently read before the HAVANA CLINICAL SOCIETY, Dr. DELFIN reports on 4 cases of hemato-chyluria successfully treated with daily doses of a teaspoonful of a 2% solution of POTASSIUM BI-CHROMATE.

The first patient had had the disease for over 2 years, and was much emaciated and still passing bloody urine when the treatment with the BI-CHROMATE was begun; as a result of the medication, the affection entirely disappeared, and the patient regained his usual health. The second patient was treated like the first, and also recovered. The third patient had been suffering from frequent attacks of vertigo, great debility, and considerable hematuria; after the *first* dose of the POTASSIUM BI-CHROMATE solution—the author states—the urine became quite clear, and merely contained a few red blood-corpuscles; there was no return of the trouble. In the fourth case, the disease had existed 10 months, in consequence of which there was much emaciation and pallor, and a small pulse; 2–3 litres [about 4–6 pints] of hemato-chyluric urine were passed daily. Treatment with the POTASSIUM BI-CHROMATE also proved successful in this case.

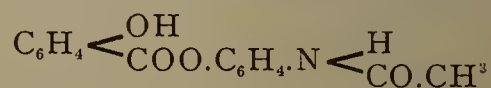
Dr. DELFIN ascribes the success thus had to the direct action of the POTASSIUM BI-CHROMATE on the diseased blood and particularly the red blood-corpuscles, on the assumption that the drug is a poison to the filariæ.

POTASSIUM BROMIDE IN HYPEREMESIS GRAVIDARUM.

Dr. COHNSTEIN recommends the use of large doses of POTASSIUM BROMIDE in cases of uncontrollable vomiting of pregnancy (*Centralblatt für Gynäkologie*). If the trouble fails to cease after the first few doses have been given, it is plain that the drug is unsuitable. According to the author, the best results are obtained in quite *recent* cases, and in those occurring in the *earlier* months of pregnancy. He considers it very important to distinguish between hysterical vomiting, and sickness due to gastric or intestinal disease. Vomiting, with the tongue clean and moist,—often the first sign of pregnancy,—should be promptly combated with antihysterical treatment: for, if neglected, it may set up some disorder of the gastrointestinal tract,—after which the patient can no longer be sufficiently benefited by the administration of purely antihysterical remedies.

SALOPHEN;—AN ANTIRHEUMATIC AND AN-TIPYRETIC—(NON-PROPHYLACTIC).

In a paper read before the BERLIN MEDICAL ASSOCIATION (*Deut. Med. Zeit.*), Dr. P. GUTTMANN describes this new compound as occurring in fine, white leaflets, devoid of odor and of taste, and easily soluble in ether and in alcohol, but almost insoluble in water; it contains 51% of salicylic acid; when heated with soda-lye, it breaks up into sodium salicylate and acetyl-para-amido-phenol. Its formula is



According to Dr. GUTTMANN, this drug, in daily doses of 4–6 grammes [$1-1\frac{1}{2}$ drs.], exerted a favorable influence in *acute articular rheumatism*: as a rule, the pains diminished in 24 hours, and progressively became less severe the second and third days of treatment; at the same time, the swelling of the joints diminished, and mobility gradually returned. However, the medicament *did not protect* against relapses, nor against the invasion of joints not affected previously.

The *antipyretic* action of SALOPHEN is but very slight: to effect a fall in temperature amounting to $1-1\frac{1}{2}^{\circ}\text{C}$ [$1.8-2.7^{\circ}\text{F}$], in cases of high, continued fever,—in typhoid, for instance,—as much as 4-6 grammes [$1-1\frac{1}{2}$ drs.] must be given within 4 hours. In fever other than high continued, even smaller doses reduce the temperature more than $1-1\frac{1}{2}^{\circ}\text{C}$. In phthisis, 3-4 grammes [45-60 grains] generally suffice to effect a reduction in temperature. However, the antifebrile action of SALOPHEN does not run parallel with the antirheumatic.

Less favorable is the action of SALOPHEN in *chronic* articular rheumatism. Of two cases of cystitis in which Dr. GUTTMANN employed the remedy internally, no improvement resulted in the one, while in the other, with simultaneous irrigation of the bladder, the disease was favorably influenced; in one case of sciatica, the medicament failed, in another, it was successful; and in one of two cases of trigeminal neuralgia, the drug effected a transient alleviation.

Dr. G. therefore considers SALOPHEN a useful remedy in acute articular rheumatism, and suggests a trial of it also in chronic articular rheumatism and other rheumatic affections. The dose is 4-6 grammes [$1-1\frac{1}{2}$ drs.] daily until the pains diminish, after which it may be decreased somewhat. According to Dr. G., the remedy has no disagreeable accessory effect even in *daily* doses as large as 6-8 grammes [$1\frac{1}{2}-2$ drs.].

SODIUM TELLURATE CONFIRMED AS AN ANTIHIDROTIC.

SODIUM TELLURATE—previously described in this journal—has been confirmed as a reliable and efficacious antisudorific in phthisical night-sweats by Dr. V. CEBRIÁN (*Siglo Medico*), of the GENERAL HOSPITAL, Madrid. He administered the medicament in doses of 0.03 gramme [$\frac{1}{2}$ grain], in pills. As a rule the second dose was followed by a decided diminution of perspiration, and the third almost invariably inhibited the diaphoresis completely. According to the author, SODIUM TELLURATE is easily taken, and is eliminated

within a few hours; it is without any appreciable effect on the pulse, respiration, or temperature. However, it does not influence the progress of the disease in any manner. As drawbacks he mentions the strong garlicky odor which the medicament imparts to the breath and perspiration, and the loss of appetite which it produces. In one of his cases toxic symptoms—vomiting, general malaise, restlessness, and headache—followed each dose of the drug, necessitating its abandonment.

The author believes the efficacy of the remedy to be due to its inhibitory action on the nerves supplying the sudoriferous glands. His experience also taught him that when the pulmonary affection is far advanced, SODIUM TELLURATE is apt to provoke a profuse diarrhea which is very hard to check; he therefore regards it as contra-indicated under such circumstances.

In conclusion, Dr. CEBRIÁN recommends SODIUM TELLURATE for the arrest of hyperhidrosis from any cause whatever.

SODIUM TETRA-BORATE, NEUTRAL, — A MORE SOLUBLE ANTISEPTIC THAN BORIC ACID.

Recent bacteriologic experiments by JÄENICKE, as reported in *Therapeutische Monatshefte*, have established that boric acid possesses no anti-mycetic (spore-killing) power; but, on the other hand, its kolyseptic (development-arresting) action is very considerable, so that all bacterial growth in blood-serum or culture-bouillon is rendered impossible by the addition of $2\frac{1}{2}$ per cent of boric acid.

This development-arresting power may well be utilized in therapy, if but the precaution be taken to *fill* the wounds with a sufficient quantity of the medicament and *keep* them filled continually until healed, so that they will be entirely unsuitable localities for the settlement and further growth of the micro-organisms.

Unfortunately, boric acid dissolves in cold water only to the extent of 4 per cent,—which is not sufficient to permit the drug to act strongly enough when further diluted by the wound secretions. Dr. JÄENICKE con-

sequently searched for a *derivative* of boric acid which, besides being easily soluble, shall possess all the kolyseptic properties of the acid; he has found such in SODIUM TETRA-BORATE, NEUTRAL.

SODIUM TETRA-BORATE, NEUTRAL contains 50 per cent of boric acid and 50 per cent of sodium bi-borate, and scarcely differs, in its antiseptic and pharmacologic properties, from boric acid; but it is widely different in its physical properties. It forms hard, clustered crystals, neutral in reaction; soluble in water at 15° C [59 F] to the extent of about 16 per cent, at 38° C [100.4 F] to 30 per cent, at 100° C [212 F] almost to 70 per cent. When saturated solutions in hot water are *quickly* cooled, precipitation does not take place immediately, but only after the lapse of some time; so that such solutions can readily be introduced even into intricately constituted cavities—such as the middle-ear, for instance. Inasmuch as the cold saturated solution of SODIUM TETRA-BORATE contains 3 times as much antiseptic substance as the cold saturated solution of boric acid, the former is practically 3 times as efficacious as the latter. Hence, the 16-per-cent solution of SODIUM TETRA-BORATE has the advantage, over a boric-acid solution, of greater certainty and longer duration of action, so that dressings saturated with it need be renewed only every 2 or 3 days.

Other advantages claimed by JAENICKE for SODIUM TETRA-BORATE are, that its natural curative action is not disturbed by any phlogotic property, and that it belongs to the most harmless medicaments; for, although its active constituent, boric acid, cannot be pronounced entirely free from poisonous properties, these latter must certainly be designated as very slight—compared with the rest of the customary antiseptics.

THILANIN (SULPHURETTED LANOLIN);—A NEW DERMIC.

In a paper read at the Third Congress of the GERMAN DERMATOLOGICAL SOCIETY, Dr. EDMUND SAALFELD of Berlin directs attention to

this new substance, which he procured to be prepared. "THILANIN" is described as a yellowish-brown unctuous substance, of the consistence of lanolin, and containing 3 per cent of sulphur—whether in combination with the cholesterin or with the fatty acids, has not yet been decided (*Therap. Monatsh.*). The author considers it valuable as an application in cutaneous affections on account of its non-irritant quality, and claims to have obtained excellent results in acute and sub-acute facial eczema, chronic and scaly eczema of the leg, papulo-vesicular eczema of the hands, eczema hagadiforme scroti et penis, sycosis vulgaris, chrysarobin dermatitis, etc.

TRI-CHLOR-ACETIC ACID AS AN ESCHAROTIC IN VARIOUS AFFECTIONS.

Dr. A. LANZ, of Moscow, according to *La Semaine Médicale*, has employed TRI-CHLOR-ACETIC ACID with good results in chronic gonorrhea, as well as in the treatment of papillomata, warts, and cutaneous pigmentations.

In *chronic gonorrhea* he applies the medicaments by means of the endoscope. Having introduced the latter into the urethra up to the affected region, the urine, mucus, and pus, which had accumulated near the anterior orifice, are removed with the aid of a small cotton tampon; the diseased surface is then cauterized once or several times successively with another cotton tampon saturated with a 1:4 solution of TRI-CHLOR-ACETIC ACID, and the excess of liquid is removed by means of a third, smaller tampon. Immediately after the cauterization the mucous membrane becomes covered with a fine grayish-white scab. The pain is quite considerable, but much less intense than that caused by silver nitrate,—so that cocaine anesthesia can readily be dispensed-with. The applications may later-on be repeated, but not before the irritation provoked by each cauterization has entirely disappeared.

To destroy *papillomata*, the author applies a small crystal of TRI-CHLOR-ACETIC ACID to the

tumor. He states that a single application suffices for small papillomata, while large and multiple ones ought to be cauterized several times in succession. These applications are reported to be only slightly painful: they can be rendered completely painless by means of cocaine. Directly after the cauterization, a dry, white, smooth, and very adherent scab forms, which detaches itself after a few days without provoking any symptoms of reaction whatever,—leaving a raw surface which rapidly cicatrizes. According to Dr. L., a great advantage of these TRI-CHLOR-ACETIC-ACID cauterizations is that the action of the medicament can be very exactly localized.

The ACID is recommended as very convenient of application in the treatment of *warts* in infants. A few cauterizations—it is claimed—suffice to completely remove even the largest warts without pain.

The author observed a vascular *nævus* on the nose to disappear after four cauterizations (at intervals of a week) with crystals of TRI-CHLOR-ACETIC ACID. The cicatrix which resulted was superficial and barely noticeable.

Finally, Dr. L. has effected the rapid disappearance of *pigmentation* in the face—relics of a papulous syphilide—by means of a few cauterizations with a concentrated solution of TRI-CHLOR-ACETIC ACID.

TRIONAL AND TETRONAL IN INSOMNIA OF THE INSANE.

Dr. ERNST SCHULTZE reports (*Therap. Monatsh.*) on the results he obtained from the hypnotics, TRIONAL and TETRONAL (previously described in this journal), at the PROVINCIAL LUNATIC ASYLUM at Bonn (Rhenish Prussia). There were administered in all 1000 doses,—400 of TETRONAL, and 600 of TRIONAL. The doses ranged from 1 to 4 grammes [15 to 60 grains], and were usually given after supper, one-half hour before bed-time, in a considerable quantity of warm water; occasionally, they were taken in soup, at supper.

The material for the investigation consisted of 76 insane patients, 20 of which suffered

from mania, 15 from paralysis, 8 from paranoia, 16 from melancholia, and 17 from feeble-mindedness with excitations.

TRIONAL was observed to be more powerful, as a rule, than TETRONAL; however, in 2 cases of feeble-mindedness, TETRONAL had a better effect than TRIONAL. In simple, uncomplicated insomnia, TRIONAL exerted a favorable influence in about 75 per cent of the cases; TETRONAL, only in a little more than 60 per cent.

From his observations, Dr. SCHULTZE feels justified in placing TRIONAL on a par with sulphonal, and thinks it might even be deserving of some preference over its congener—on account of its less disagreeable by-effects and its greater promptness of action.

The results attained with TRIONAL may well be designated as generally favorable,—a circumstance that may possibly be of moment in ordinary medical practice; for in just those cases where there was but a *moderate* degree of insomnia to combat, the remedy proved very serviceable indeed.

TURPENTINE OIL IN CROUPOUS PNEUMONIA.

Dr. H. W. SLEPIANIN warmly recommends inhalations of TURPENTINE OIL in croupous pneumonia (*Meditz. Obozr.*). He employs the following formula:

Turpentine Oil.....	f 3 x	[30 gm.]
Glycerin.....	f 3 vi	[30 “]
Distilled Water.....	f 3 vi	[180 “]

For 5-6 inhalations.—To be inhaled, by means of a steam-atomizer, 5-6 times a day, for 5-10 minutes each time. Stir frequently while using.

During the inhalation, it is advised to keep the patient slightly on his side, with his head somewhat raised and the atomizer on a low stool close to the bed and directly in front of him. The patient may breathe in the ordinary way, but should *occasionally* take five or six very deep inspirations.

The author claims that all the cases of fibrinous pneumonia in which he employed the TURPENTINE - OIL inhalations were distinguished by a remarkable benignity, and particularly by the relative well-being of the patients.

PRACTICAL HINTS

ON METHODS IN THERAPY, PHARMACY, ETC.

THREATENED ABORTION;—ITS TREATMENT BY OPIUM ENEMATA.

Dr. FELIKS ARNSTEIN, of Kutno (Russian Poland), holds that the physician is justified in accelerating and terminating the abortive process in cases of threatened abortion *only* when the interruption of gestation is caused by *death* of the fetus. In all other cases—be the uterine pains of short or long standing, weak or strong; be flooding absent or present, scanty or profuse; be the cervix softened or not and the os closed or gaping,—he says one and the same plan of treatment must be followed—to wit, the adoption of all possible measures for retaining the ovum in the uterus and arresting its threatened expulsion.

The best way to accomplish this, in the author's opinion,—as stated in the *Gazeta Lekarska*,—is by perseveringly administering OPIUM *per rectum*: fifteen drops of OPIUM tincture (*Ph. Ross.*,—1:10 of the drug) with two tablespoonfuls of lukewarm water are injected into the bowel hourly,—the patient lying quietly in bed and occasionally partaking of some acidulated drink.

Aside from the cases in which complete detachment of the ovum has already taken place, the treatment just described is reported to be followed by the best possible results: the uterine pains steadily and rather quickly become less intense and less frequent, and ultimately cease entirely; bleeding diminishes and soon disappears; and after the lapse of some (occasionally twenty) hours, the os is found to have contracted and the ovum to have receded.

Dr. A. relates a case in which a fairly advanced abortion was controlled by the rectal injection of 45 drops of the OPIUM tincture. In some cases, however, 80 or even 150 drops may be required for the purpose. Pregnant women are believed to tolerate OPIUM much better than other persons,—the

toxic effects being usually limited to a heavy feeling in the head and drowsiness, which generally disappear in about a day.

MERCURIAL STOMATITIS;—ITS PREVENTION AND TREATMENT.

According to the experience of Dr. E. FEIBES, of Aix-la-Chapelle, the best means of preventing the occurrence of stomatitis in the course of mercurial treatment consists in the employment of the following tooth-powder and gargle (*La Sem. Méd.*):

Prepared Chalk.....	32 parts.
Potassium Chlorate.....	} of each 16 “
Red Cinchona-bark.....	
Krameria.....	10 “
Soap.....	23 “
Peppermint Oil.....	3 “
[Tooth-powder!]	
Aluminium Acetate (soluble).....	1 part.
Distilled Water.....	} of each 20 parts.
Orange-flower Water.....	

[Gargle!]

If the gums become sensitive, they are bathed three times daily with the following:

Myrrh Tincture..	} equal parts.
Nut-gall Tincture..	
Krameria Tincture.....	

[Externally!]

If in spite of all these measures, the teeth become loosened, a fine probe armed with a small cotton tampon, is introduced between the tooth and the gum, and the putrid masses removed. In the same manner a second sound, armed with cotton, saturated with a concentrated (1:2) solution of chromic acid, is then introduced. As this cauterization is quite painful, it is best to first anesthetize the parts by means of cocaine. After each application of the escharotic, the patient should gargle with acidulated chloroform-water.

According to the author, the effect of this treatment is excellent; since he has been using it, he has never been obliged to discontinue mercurial treatment on account of stomatitis.

ABORTIVE TREATMENT OF ACUTE CORYZA.

According to Dr. CAPITAN (*Méd. Moderne*), a snuff made in accordance with the following formula and used every hour,—a pinch for each nostril, well snuffed up so as to penetrate deeply,—will, as a rule, arrest an incipient coryza almost immediately :

Salol.....	gr. xv	[1 gm.].
Salicylic Acid.....	gr. 111	[0.2 “].
Tannic Acid.....	gr. 1ss	[0.1 “].
Powdered Boric Acid	3 i	[4 “].

Externally !

This snuff usually need not be continued longer than half a day. There will then probably appear a slight eczematous eruption on the margins of the nostrils, due, really—according to the author—to the action of the carbolic acid resulting from the decomposition of the salol. If, then, it is desirable still to continue the use of the powder, the latter should be *diluted* with a little powdered talcum or with powdered boric acid; or the formula may be modified by diminishing the quantity of salol from 1 gramme [15 grains] to 0.5 gramme [7½ grains] or even to 0.25 gramme [3¾ grains]. The use of the snuff, thus modified, can be continued—Dr. C. says—without inconvenience for a length of time, and is not without efficacy.

A second formula given for a snuff, less active than the first, but nevertheless yielding very satisfactory results, is the following :

Powdered Talcum.....	gr. LXXV	[5 gm.].
Antipyrine	gr. xv	[1 “].
Powdered Boric Acid.....	gr. xxx	[2 “].
Salicylic Acid.....	gr. iv	[0.25 “].

A good pinch to be taken quite frequently.

The author has never observed any irritation about the nostrils to follow the use of this latter snuff.

“USELESS MEDICINES.”

Dr. JAHN has devoted a special chapter in his “ Guide to Economical Prescribing ” to a criticism of the prescription of useless medicinal forms and combinations. According to the author, the employment of *opium* or *morphine* in ointments should be discountenanced,

on the ground that these drugs are inert in this form ; *condurango* should not be prescribed in *decoction*, because its active principle is precipitated from it by the boiling; if *pills* become *too hard*, they are inefficacious, because they then do not dissolve in the stomach or intestines; and *silver nitrate*, *aconitine*, *cocaine*, *hyoscine*, or *corrosive sublimate*, should not be prescribed in pills together with *vegetable* substances, because they are decomposed under these circumstances.

Great extravagance—he continues—is practiced with the remedies employed in *liniments*—whose curative value is in itself very slight; it is therefore advised to prescribe only the cheapest liniments—soap liniment, ammoniated soap liniment, turpentine liniment, camphor spirit, spirit of ants, etc.

As regards the so-called “medicated” *baths*, Dr. JAHN regards the steel, iron, iodine, and tannic-acid (oak-bark) baths as entirely superfluous.

He also advises the physician to be rather reserved in the prescription of *extracts*: preparations like digitalis extract, pomegranate-bark extract, and squill extract, are often unreliable.

Ether need not be prescribed with *digitalis* tincture, or with *valerian* tincture, because it is superfluous: there exists an *ethereal tincture* both of digitalis and of valerian.

EPHEDRA VULGARIS, according to Dr. BETCHINE, has decidedly beneficial effects in *rheumatism*. He uses an infusion of the stem and root.

COCAINE used in the *urethra* is considered to be attended with more risk than when applied to any other part of the body. Some authorities positively forbid it in the recently cut or denuded urethra.

SALOL, according to Dr. WEBER, manifests its antiseptic properties most markedly in *infantile diarrhea*. The rapidity with which it acts—vomiting and diarrhea ceasing in 24 hours—is considered a great advantage.

RECENT REMEDIES:—Their Prescription and Dispensation, as suggested by the Latest Clinical Reports.—FIRST SERIES.

NAME.	COMPOSITION OR ORIGIN.	GENERAL PHYSICAL PROPERTIES.	SOLUBLE IN	ACTION.	*DOSE: { I: Internally, { H: Hypodermically, } —(Externally,—see under "Remarks.")				REMARKS.		
					GRAINS OR MINIMS.		GRAMMES.				
					S'GLE.	D'LY.	S'GLE.	D'LY.		MAX.	MAX.
Agaricic Acid (Agaric or Agaricinic, or Lactic Acid),—"Agaricin" Ph. G. III.	$C_{16}H_{30}O_5 + H_2O$. — From <i>Fungus laticis</i> (White Agaric).	White powder, melting at $138^{\circ}C$ [$280.4^{\circ}F$].	Water, slightly.	Efficacious ANTIHIDROTIC (Phthisis, etc.).	$\frac{1}{3}$ — $1\frac{1}{2}$		0.02—0.1		S'gle: 0.1	Best given in pills, at night.	
"Antinervin" (so-called "Salicyl-brom-anilide").	Acc. to E. RITSERT, a Mixture of 1 Ammonium Bromide, 1 Salicylic Acid, and 2 Antifebrin.			ANODYNE, etc.							
"Antiseptin" (so-called "Zinc Boro-thymo-iodide").	Acc. to GOLDMAN, a Mixture of about 85 Zinc Sulphate, 2.5 Zinc Iodide, 2.5 Thymol, and 10 Boric Acid.			ANTISEPTIC.							Not to be confounded with "Antiseptin" (para-mono-Brom-phenyl-acet-amide), nor with "Antiseptol" (Cinchonine Iodo-sulphate).
Apo-codeine Hydrochlorate.	$C_{18}H_{19}NO_3 \cdot HCl$.	Amorphous powder.	Water.	EXPECTORANT, etc. (Chronic Bronchitis, etc.).	I: 3-4; H: $\frac{1}{8}$ — $\frac{1}{2}$		I: 0.18—0.25 H: 0.01—0.03				Given int. in pills, hypoderm. in 2% solution.
Benz-anilide (Phenyl - benz - amide).	$C_6H_5 \cdot NH \cdot CO \cdot C_6H_5$.	White powder.	58 cold, 7 hot Alcohol; almost insol. in Water.	Children's ANTIPIRETTIC (Pneumonia, Meningitis, etc.).	$1\frac{1}{2}$ —9		0.1—0.6	D'ly: 48	D'ly: 3-2		The dose-statements are for ages 1-12 years.
Benzoyl - Guaiacol (Guaiacol Benzozate; "Benzosol").	$C_6H_4 < \begin{matrix} OCH_3 \\ OCO C_6H_5 \end{matrix}$ (1) (2) Contains 54% of Guaiacol.	Colorless powder, melting at $56-58^{\circ}C$ [$132.8-136.4^{\circ}F$].	Chloroform, Ether, Alcohol; insol. in Water.	Internal ANTISEPTIC (Phthisis, etc.).	$3\frac{1}{4}$ —12		0.25—0.8				Given 3 times daily, in powders, with Peppermint-oil Sugar, beginning with the small dose, and increasing to the large one.
Beta - Naphthol Benzozate (—"Benzo-naphthol")	$C_{10}H_7O \cdot C_7H_5O$.	Whitish powder, melting at $110^{\circ}C$ [$230^{\circ}F$].	33 Chloroform, in Alcohol; more in hot Alcohol; almost insol. in Water, Ether.	Intestinal ANTISEPTIC, breaking up into its components in the intestine.	4— $7\frac{1}{2}$		0.25—0.5	D'ly: 75	D'ly: 5		Best given in small and frequently repeated doses, preferably in wafers.
Bismuth Subcallate (so-called "Dermatol").	$Bi_2O_3 \cdot H_2O$. — Contains 55% of Bismuth Oxide.	Insoluble, odorless, saffron-yellow powder.		Non-irritant and non-toxic external SICCATIVE ANTISEPTIC (Wounds, Weeping Eczema, Ulcers, etc.); Succedaneum for Bismuth sub-Nitrate internally (Gastro-intestinal Affections).	30				2		Used, externally, like Iodoform.
Bromoform , chem. pure.	$CHBr_3$.	Colorless liquid, sp. gr. 2.830 at $0^{\circ}C$ [$32^{\circ}F$].	Alcohol, very poorly in Water.	General ANESTHETIC, Antispasmodic, etc.—Recently employed in Whooping-cough.	Under 1 yr. 1-1.3; 1-4 yrs. 1.4-1.5; 5-7 yrs. 0.6-0.75; 11-15. 1.1-1.5.						Given 3-4 times daily, in a tea-spoonful of water; or in hydro-alcoholic solution.

Caffeine di-iodide-Hydro-iodate (<i>so-called</i> "Caffeine tri-Iodide") $(C_8H_{10}N_4O_2I_2.HI)_2 + 3H_2O$.	Long, lustrous, dark-green prisms.	Alcohol.	<i>Non-depressant</i> Iodide, readily liberating Iodine in the stomach.	2-4		0.12-0.25		
Camphorated Salol (Salol-camphor).	Composed of 2 parts Camphor, 3 Salol.	Ether, Chloroform, Oils; <i>insol.</i> in Water.	EXTERNAL ANTISEPTIC (<i>Otorrhea</i> , etc.); DERMIC.					Used in <i>Otorrhea pure</i> on a tampon, renewed every other day. Boric-acid washes used besides.
Cetraric Acid (Cetrarin).	White needles, bitter taste.	Boiling Alcohol.	HEMATINIC, STOMACHIC, PERISTALTIC (Chlorosis, Digestive Disturbances with Anemia, etc.)	1½-3	3-6	0.1-0.2	0.2-0.4	Administered in <i>pills</i> , twice daily.
Chloral Ammonium (Tri-chlor-amido-ethylc Alcohol).	White powder, melting at about 64° C [147.2 F].	Alcohol; slightly in Water.	HYPNOTIC, ANALGETIC.	15-30		1-2		
Chromic Acid , chem. pure,— <i>absolutely free from H₂SO₄</i> .	Crystals or sticks.		<i>Non-deliqescent</i> ESCHAROTIC. Recently lauded also in obstinate <i>Syphilitic Ulcerations</i> .					Applied <i>pure</i> , melted on a silver probe, every 24-48 hours; <i>or</i> in <i>stick</i> .
Cinchonine Iodo-sulphate (<i>so-called</i> "Antiseptol").	Reddish-brown powder.	Water, Alcohol, Chloroform.	ANTISEPTIC.—Successful for Iodoform.					
CocainePhenate (Carbolate).	Viscid yellow mass.	Alcohol; <i>insol.</i> in Water.	LOCAL ANESTHETIC, Analgetic, Anticatarhal (Dental Operations, Rheumatic Pains; Con-junctival, Nasal, Gastric and other Catarrhs).	1½-3		0.005-0.01		Best given in <i>capsules</i> , 1-2 times daily. Used, for insufflation, in 5-10% trituration with Antifebrin; for <i>pain</i> <i>or</i> <i>instillation</i> in 1-5-10% solutions, or pure.
Conine (Conicine, Cicutine) Hydrobromate .	Colorless, transparent prisms.	Water, 2 Alcohol; difficultly in Ether and Chloroform.	ANTISPASMODIC, ANTI-NEURALGIC, etc., (Tetanus, Sciatica, etc.).—Recently lauded in <i>Whooping-cough</i> .	<i>Adults</i> : 30-16; <i>Child'n</i> : 30-20		<i>Ad.</i> : 0.005-0.002; <i>Ad., d'y</i> , 0.004 <i>Ch.</i> : 0.0001-0.00015; <i>Ch., s'gle</i> , 0.00125; <i>Ch., d'y</i> , 0.003-0.005		In Traumatic Tetanus, 0.01 gramme [$\frac{1}{2}$ gn.], <i>hypoderm.</i> , or 0.005 gramme [$\frac{1}{2}$ gn.], <i>intern.</i> , may be given every 2 hours,— <i>by exception!</i>
Creasote , pure,—Ph. G. III,—from Beech-tar.	Colorless fluid, sp. gr. not under 1.070.		ANTISEPTIC, ANTITUBERCULAR, etc.			<i>S'gle</i> : 3 <i>D'y</i> : 15		Beech-tar Creasote is the <i>only</i> kind of Creasote permissible for <i>internal use</i> .

* DOSES not otherwise stated, are for administration *per os*.

Continued on next page.

RECENT REMEDIES.—Continued from last page.

NAME.	COMPOSITION OR ORIGIN.	GENERAL PHYSICAL PROPERTIES.	SOLUBLE IN	ACTION.	*DOSE: { I: Internally. } — (Externally, —see "Remarks.") { H: Hypodermically. }						REMARKS.
					GRAINS OR MINIMS.						
					S'GLE.	D'LV.	MAX.	S'GLE.	D'LV.	MAX.	
Creolin-Pearson.	From Coal-tar Creasote.	Dark-brown, syrupy liquid, sp. gr. 1.040-1.080.	Water to $\frac{2}{3}$; Alcohol and Ether in every proportion; Chloroform; <i>insol.</i> in Wood-Spirit.	<i>External and Internal</i> ANTISEPTIC, DEODORANT, etc.—Non-poisonous Succedaneum for Carbolic Acid.	$\frac{1}{2}$ -5	$1\frac{1}{2}$ -15		0.03-0.3	0.1-1	Best given in pills, or well diluted, after meals.— <i>Externally</i> , it is used mostly in $\frac{1}{2}$ -2% solutions sometimes undiluted.	
Cresalol, para- (Salicylate of para-Cresol).	$C_6H_4.OH.CO.O.C_6H_4.CH_3$.	Whitish powder.		<i>Intestinal</i> ANTISEPTIC, etc., like Salol.		$3\frac{3}{4}$ -30			0.25-2	Administered in wafers.	
Cresotic Acid, para-	$C_7H_8O_3$.	White needles, melting at $151^{\circ}C$ [303.8 F].	Alcohol, Ether, Chloroform; slightly in cold Water.	ANTIPYRETIC, <i>Intestinal</i> ANTISEPTIC, etc.						Has not been used uncombined thus far.—See "Sodium para-Cresotate"!.	
Ethyl Chloride.	C_2H_5Cl .	Gas at ordinary temperatures; when compressed, a colorless liquid, boiling between 10 and $12^{\circ}C$ [50-53.6 F], and burning with a green flame.		<i>Local</i> ANESTHETIC (Minor and Dental Surgery, Neuralgia, etc.).						Used in <i>spray</i> ,—the heat of the hand sufficing to cause the fluid to issue forth in a fine stream from the capillary point of the tubes in which it appears on the market in the compressed state. <i>Very inflammable!</i>	
Ethylene Bromide (Di-brom-ethane).	$C_2H_4Br_2$.	Slightly brownish, emulsifiable fluid, sp. gr. 2.163 at $21^{\circ}C$ [69.8 F].	Alcohol; <i>insol.</i> in Water.	ANTI-EPILEPTIC.	$\frac{3}{4}$ -2			0.1-0.3		Administered best in <i>emulsion</i> or capsules, 2-3 times daily.	
Euphorin (Phenylethylic Ur-ethane; Carbamate of Ethyl and Phenyl).	$CO<\frac{O.C_2H_5}{NH}.C_6H_5$.	White powder, of weak aromatic odor and taste.	Alcohol; Water poorly.	ANTIPYRETIC, ANODYNE, etc. (Rheumatism, etc.); <i>Surgical</i> ANTISEPTIC (Ulcers, etc.).	$7\frac{1}{2}$ -15	23-30		0.5-1	1.5-2	Given <i>internally</i> , in small doses first, 2-3 times daily; applied <i>externally</i> in <i>pure</i> form.	
Europhen (Iodo-di-iso-Butyl-ortho-Cresol).	Contains 21.8% of Iodine.	Yellow powder.	Alcohol, Ether, Chloroform, Oils; <i>insol.</i> in Water, Glycerin.	DERMIC, ANTISYPHILITIC, etc.	H: $\frac{1}{4}$ - $1\frac{1}{2}$	H: $\frac{1}{4}$ - $1\frac{1}{2}$		H: 0.015-0.1	H: 0.015-0.1	Used <i>externally</i> , mostly in 5-10% ointments or <i>pure</i> ; <i>hypoderm.</i> in <i>oily</i> solution.	
Gall-aceto-phenone.	$CH_3CO.C_6H_4(OH)_3$.	Pale-yellow powder, melting at $70^{\circ}C$ [158 F].	Glycerin in every proportion, Alcohol, Ether, <i>hot</i> Water; scarcely in <i>cold</i> Water.	Non-poisonous Succedaneum for Pyro-gallic Acid.						Applied in 10% ointment.—Not yet in the market!	
Glutin-peptone-sublimite (Mercury Glutino-peptonate, Hydrochlorated),—Solution.	Contains 1% of $HgCl_2$.	Colorless, non-corrosive liquid.		Prompt <i>Hypodermic</i> ANTISYPHILITIC.	H: 15			H: 1		Preferably injected between the shoulders, or in the gluteal region. Only <i>very slightly</i> painful, produces <i>no abscess</i> .	

Gold mono-Cyanide.	Au CN.	Yellow, insipid powder.	<i>Insol.</i> in Water, Alcohol, Ether.	ANTITUBERCULAR.	$\frac{1}{10}$ - $\frac{1}{4}$			Given in <i>troches</i> , several times daily.
Gold tri-Cyanide.	$\text{Au}(\text{CN})_3 + 3\text{H}_2\text{O}$.	Large, colorless, tabulated crystals.	Water, Alcohol.	ANTITUBERCULAR.			0.004-0.016	Used similarly to the mono-Cyanide.
Guaiacol Salicylate (Guaiacolic Salol).	$\text{C}_6\text{H}_4(\text{OH})_2 \cdot \text{C}_6\text{H}_4(\text{OOC})_2$.	White, insipid, odorless crystals, melting at about 65°C [149°F].	Alcohol; <i>insol.</i> in Water.	<i>Intestinal</i> ANTISEPTIC,—like Salol.				Used similarly to Salol.
Ichthyol (Ammonium Sulpho-ichthyolate).	$\text{C}_{28}\text{H}_{36}\text{S}_3\text{O}_6(\text{NH}_4)_2$. From a mineral Oil. Contains 15% easily assimilable Sulphur.	Clear, thick, brownish liquid, of a smoky bituminous odor and taste.	Water, <i>mixture</i> of Alcohol and Ether, Oils, Glycerin, Fats; only partly in <i>pure</i> Alcohol, or <i>pure</i> Ether.	ANTIPHLOGISTIC, ANODYNE, ALTERATIVE, etc. (Cutaneous Affections, Rheumatism, Inflammatory Diseases of Women, Scrofula, etc.)	3-10	10-30	0.2-0.6	Taken <i>well-diluted</i> , or in <i>pills</i> or <i>capsules</i> , 3 times daily, after meals; applied externally <i>pure</i> , in <i>solutions</i> and <i>ointments</i> of various strengths.
Iodole (Tetra-iodopyrrole).	$\text{C}_4\text{I}_4\text{NH}$.— Contains 88.97% Iodine.	Very fine, greyish-brown, inodorous powder.	1 Ether, 3 Alcohol, 5000 Water.	ANTISEPTIC, TRAUMATIC GRANULATOR, ALTERATIVE, etc. — <i>Non-toxic</i> Succedaneum for Iodoforn.	$7\frac{1}{2}$ -23	$D'ly$: 45	0.5-1.5	$D'ly$: 3 Applied externally <i>pure</i> in <i>Alcoholic solution</i> to which Glycerin is added for dilution, in <i>Ointment</i> , in <i>Emulsion</i> (preferably in Olive Oil 1:15), in <i>Colloidum</i> , in <i>Ethereal solution</i> (for spray), or on gauze.
Iodo-phenin (Iodo-phen-acetin).	Contains about 50% Iodine.	Dark-brown powder.	Alcohol; almost <i>insol.</i> in Water.	BACTERICIDE,—rather strongly evolving Iodine.				Given <i>dividedly</i> in 3-4 doses, in <i>wafers</i> or <i>pills</i> .
Koussein (Coussein, Brayerin),— <i>amorphous</i> .	Active principle of <i>Brayera</i> .	Yellowish-brown powder.	Alcohol, Chloroform, Ether; sparingly in Water.	ANTHELMINTIC.	45-60		3-4	Injected once every 3-5 days, suspended in Liquid Paraffin or Glycerin.—0.01 gramme [$\frac{1}{8}$ grn.]. Cocaine may be added to each injection.
Mercur-rhymol Acetate.	$\text{C}_{10}\text{H}_{13}\text{O Hg} \cdot \text{CH}_3\text{CO}_2$.— Contains 56.9% Mercury.	Colorless crystals.	In <i>alkaline</i> solutions; <i>insol.</i> in Water.	ANTISYPHILITIC for <i>Intra-muscular Injection</i> .	$1\frac{1}{2}$		0.1	
Methylene Blue.	An Aniline-dye.	Blue powder.	About 50 Water.	ANODYNE, ANTIPERIODIC, etc. (Neurotic Processes, Rheumatic Affections, etc.; Malaria).	$7\frac{1}{2}$	$S'gl$: $7\frac{1}{2}$ $D'ly$: 15	I : 0.1-0.25; H : 0.06	Best given in <i>capsules</i> .—In <i>Malaria</i> , 0.1 gramme [$1\frac{1}{2}$ grn.] is given 5 times daily and <i>continued</i> at least 8-10 days after the disappearance of the fever.
Monesia, Aqueous Extract of Bark.				ASTRINGENT, STOMACHIC, EXPECTORANT, etc. (Chronic Diarrhea, Bronchitis, etc.).	$2\frac{1}{2}$ -5		0.15-0.3	Administered in <i>aqueous solution</i> , every 2 hrs.
Mono-chlor-phenol.	$\text{C}_6\text{H}_4\text{Cl.OH}$.	Volatile fluid, whose vapor is heavier than air.		<i>Inhalation</i> ANTISEPTIC (Phthisis, Laryngitis, etc.).				Reported to be well-borne, and non-irritating.

* DOSES not otherwise stated, are for administration *per os*.

Continued on next page.

RECENT REMEDIES.—Continued from last page.

NAME.	COMPOSITION OR ORIGIN.	GENERAL PHYSICAL PROPERTIES.	SOLUBLE IN	ACTION.	*DOSE: { I: Internally. } — { Externally, — see H: Hypodermically. } under "Remarks."						REMARKS.
					GRAINS OR MINIMS.		GRAMMES.				
					S'GLE.	D'LY.	S'GLE.	D'LY.	MAX.	MAX.	
Napelline.	Alkaloid from <i>Aconitum napellus</i> .	White powder.	Water, Alcohol, Ether.	ANODYNE, ANTINEURALGIC, etc. (Rheumatic pains, etc.).	1-1/2		0.01-0.03				
Orexin (Phenyl-dihydro-Quin-azoline Hydrochlorate).	$C_6H_4 \cdot CH_2 \cdot N \cdot CH \cdot N \cdot C_6H_5 \cdot HCl + 2H_2O$.	Greyish powder. — (<i>New form!</i>)	Hot Water.	APPETIZER, STOMACHIC in Anorexia (<i>not associated with Gastric Disease</i>) consequent upon Phthisis, Chlorosis, Cardiac Disease, after major surgical operations, etc.	4		0.25				Administered 1-2 times daily, in <i>wafers</i> , with a <i>copious draught</i> of beef-tea or other liquid.
Papayotin.	The concentrated active principle of the juice of <i>Carica Papaya</i> (Melon-tree). — Peptonizes 200 parts blood-fibrin.	<i>Hygrosopic</i> , odorless, whitish powder.	Water, Glycerin; <i>insol.</i> in Alcohol, Ether, Chloroform.	DIGESTIVE, SOLVENT of false membranes, etc. (Dyspepsia, Diphtheria, Croup, etc.).	1-5	3-15	0.06-0.3	0.2-1			Applied <i>externally</i> in 5% solution in equal parts Glycerin and Water, as a <i>paint</i> , every 20-30 minutes.
Par aldehyd.	$(C_2H_4O)_3$. — Polymetric modification of Aldehyd.	Colorless fluid, sp. gr. 0.998 at 15° C [59 F], boiling at 124° C [275.2 F], becoming a crystalline solid at 10° C [50 F].	8-10 <i>cold</i> Water, less in <i>warm</i> ; Alcohol, Ether, fixed Oils.	<i>Safe</i> HYPNOTIC, ANTI-SPASMODIC, etc. — Recently recommended as an Antidote in Morphine-poisoning, in combination with Picrotoxin in small doses.	30-90				<i>S'gle</i> : 150		Given well-diluted. Its taste may be disguised with Rum and Lemon Essence. — Keep <i>well-stoppered</i> , from light!
Pelletierine (Purine) Tannate.	$C_8H_{13}NO \cdot C_{14}H_{10}O_9$. — Alkaloid from Pomegranate-bark.	Yellow, <i>hygrosopic</i> , odorless powder, pungent and astringent in taste.	700 Water, 80 Alcohol.	Prompt and innocuous TONIC.	23				1.5		Taken with 1 oz. Water, and followed by purgative.
Pental (Tri-methylene; Beta-isomylene).	$(CH_3)_2 : C : CH \cdot CH_3$.	Colorless liquid, sp. gr. 0.6783 at 0° C [32 F], boiling at 38° C [100.4 F], burning with a luminous flame.	Alcohol, Chloroform, Ether, — in all proportions.	Safe <i>general</i> ANESTHETIC.							Best administered by means of Junker's inhaler, — 3-5 fl. drs. being used. — Highly <i>inflammable</i> !
Potassium Tellurate.	$K_2 Te O_4$.	White crystals.	<i>Insol.</i> in Water.	Efficacious ANTIHEDROTIC (Phthisis, etc.).	1/2-3/4		0.03-0.05				Given at night, in <i>pills</i> , or alcoholic <i>julep</i> .
Pyoktanin.	A Coal-tar derivative.	Powder.	30 <i>boiling</i> , 50 <i>hot</i> , 75 <i>cold</i> Water; 12 Alcohol, 50 Glycerin, Chloroform; <i>insol.</i> in Collodium, Ether, Benzin.	NON-poisonous, very diffusible, practically odorless <i>External</i> ANTISEPTIC, DISINFECTANT, ANALGETIC, etc. (For Surgery, Ophthalmia, Otitis; Diseases of the Nose and Throat, Malignant Growths, etc.)							Applied in <i>pure powder</i> , <i>pencil</i> , or <i>solution</i> (1-10:1000), etc. — PYOKTANIN STAINS are removed by lathering with common Soap (rubbing-in well), and then washing (or, if need be, brushing) off with Alcohol. — PYOKTANIN PENCILS, when broken, are mended by wetting the surfaces with Water, and pressing them together.
Resorcin (Resorcinol; Meta-Di-oxibenzen e), chem. pure, resublimed.	$C_6H_4(OH)_2$. — A di-hydric Phenol.	White, light, flocculent powder.	1 1/2 Water, Alcohol, Ether, 20 fixed Oils; <i>insol.</i> in Chloroform.	ANTI-EMETIC, <i>Gastro-intestinal</i> ANTIZYMOtic, etc. (Cholera morbus and nostras, Chronic Gastric Catarrh, Seasickness).	1 1/2-2 1/4		0.1-0.15				Given in <i>mixture</i> , or <i>powders</i> , every 1-2 hrs.

Retinol (Rosinol; Resinol).	Distillation-product of Pine or Fir Resin.	Viscid fluid, sp. gr. 0.900, boiling at 238° C [460.4 F].	External and Internal Antiseptic (Venereal and Cutaneous Affections, etc.);—also, SOLVENT of Phosphorus, Salol, Iodole, etc.	0.5	4-7	Administered in capsules, 4-6 times daily. Applied, <i>externally</i> , <i>pure</i> , in liniment, in ointment.
Rubidium and Ammonium Bromide , (<i>Double Salt</i>).	Rb Br. 3NH ₄ Br.	White or yellowish powder.	ANTI-EPILEPTIC, SEDATIVE, HYPNOTIC (Genitine Epilepsy and allied ailments).	60-105		Given in solution.—As a <i>hypnotic</i> , 4-5 grammes [60-75 grains] are given.
Santonin-oxim.	C ₁₆ H ₁₈ O ₂ .NOH.—Derivate of Santonin.	White leaflets or needles.	Non-toxic Succedaneum for Santonin.	Ad.: 0.3 Ch.: 0.05-0.15		Given in 2 <i>fractional</i> doses at intervals of 1-2 hrs.,—in <i>water</i> , or <i>wafers</i> ,—followed by a <i>purgative</i> , and repeated for 2-3 consecutive days.
Sodium di-Iodo-Salicylate.	HO.C ₆ H ₄ I ₂ .CO ₂ Na.	White leaflets or needles.	ANALGETIC, ANTITHERMIC, ANTISEPTIC (the latter in <i>parasitic</i> Dermic Affections <i>principally</i>), etc.			The <i>acid</i> from which this salt is derived is given in doses of 1½-4 grammes [23-60 grains] daily.
Sodium Ethylate , dry.	C ₂ H ₅ .NaO.	White or brownish powder, splitting into Alcohol and Caustic Soda upon contact with even a small quantity of Water.	ESCHAROTIC (Nævi, Warts, etc.), DEPILATORY.			Applied in <i>solution</i> (1:3 <i>absol.</i> Alcohol), with a glass rod.—Chloroform <i>arrests</i> its action.
Sodium Formate	Na CHO ₂ .H ₂ O.	Small, white, <i>deliquescent</i> crystals.	Recently lauded, by <i>par-enchymatous injection</i> , in Surgical Tuberculosis.	Ad.: 0.2 Ch.: 0.025-0.075		Used once every 8-10 days.—Keep well-stoppered!
Sodium Naphtholate (<i>so-called</i> "Microcidin").	75% pure.	Whitish powder.	Surgical ANTISEPTIC.			Applied in <i>solution</i> (3-5: 1000).
Sodium para-Cresotate.	C ₈ H ₇ NaO ₃ .	Bitter powder.	ANTIPYRETIC (Rheumatism, Pneumonia, etc.). <i>Infants'</i> <i>Intestinal</i> ANTISEPTIC (Gastro-intestinal Catarrh, etc.).			Best given in <i>aqueous solution</i> , with Licorice Extract.
Theobromine and Sodium Salicylate.	C ₇ H ₇ N ₄ O ₂ Na.C ₆ H ₄ .OHCOO Na.	White powder.	DIURETIC (Cardiac Affections with dropsical effusions particularly, etc.).	1	6	Given in 5% <i>solution</i> .
Zinc Sulphhydrate.	Zn (SH) ₂ .	White solid, prone to decompose in the dry state (must be kept under Water!).	Internal and External DERMIC (<i>Vegeto-parasitic</i> Affections).		0.03-0.12	Administered in <i>pills</i> ; applied <i>externally</i> in 10% <i>ointment</i> .

* Doses not otherwise stated, are for administration *per os*.

ANTISEPTICS;—THEIR EFFECT ON THE HEALING OF WOUNDS.

At the recent International Congress of Hygiene and Demography,—Section of Bacteriology,—DR. ARMAND RUFFER said that, without entering into the question as to whether leucocytes and wandering cells in general take an active part in the formation of cicatricial tissue, there can be no doubt that these cells have the function of removing foreign bodies (blood-clots, ligatures, micro-organisms, etc.) which have been accidentally left in a wound, or purposely introduced into it. Any agents, therefore, which, to any appreciable extent, prevent the emigration of wandering cells, must retard the healing of a wound. The object of his experiments was to find out what effect, if any, antiseptics produced on the emigration of leucocytes. He found all antiseptics as used in surgery at the present moment, when applied to a wound, hindered the emigration of leucocytes to the spot where the antiseptic is placed. This inhibitory action varies with the kinds of antiseptics used, and the action is purely local. It is not a paralyzing action, for when an antiseptic is placed under the skin, the leucocytes emigrate, but shun the antiseptic. A substance may have very low antiseptic properties and repel leucocytes most energetically,—as lactic acid,—or it may possess fair antiseptic powers and not repel leucocytes,—like iodoform; or, being a strong antiseptic, may either attract or repel,—such as carbolic acid and corrosive sublimate. Generally speaking, the chemical substances which combine readily with the salts and albuminoid bodies of the blood,—carbolic acid and corrosive sublimate,—do not repel leucocytes so energetically or for so long as those which do not readily combine—*aniline, benzene, etc.*

URINE-SUGAR-TEST BY PHENYL-HYDRAZINE,—MODIFIED.

The FISCHER-JAKSCH PHENYL-HYDRAZINE SUGAR-TEST—minutely described in a previous number of this journal—has since been found to suffer from the drawback that at times the

characteristic reaction fails to set-in. Dr. W. HAVELBURG (*Centralblatt für Klinische Medizin*) has modified this test, and claims to have thereby rendered it entirely reliable. His method consists in putting the PHENYL-HYDRAZINE with some sodium acetate into a test-tube,—as is done in the original test (see MERCK'S BULLETIN, 1890; p. 89),—filling the tube almost half full of water, heating somewhat, and adding an equal volume of urine. Then, instead of setting the test-tube in boiling water,—as is done in the FISCHER-JAKSCH test,—the liquid is shaken with chloroform. After a while, a zone forms over the chloroform; and if the fluid tested contain sugar, canary-yellow crystals—alone characteristic of the reaction—will develop in this zone. Even in very weak saccharine solutions, in which FEHLING'S test failed, these crystals could yet be detected.

SOME SO-CALLED SYNTHETIC COMPOUNDS.

ANTINERVIN	(so-called, SALICYL-BROM-ANILIDE);	}
ANTISEPTIN	(so-called, ZINC BORO-THYMATE IODIDE);	
SOMNAL	(so-called, ETHYLATED CHLORAL-URETHANE).	

These three compounds, recently introduced, have been represented as new synthetic products. But all these three are shown,—according to the authorities below cited,—by exact chemical analyses, to be simple mixtures; as follows:—

1.)—ANTINERVIN is declared by E. RITSERT (*Pharmazeutische Zeitung*) to be a mixture of about 25 parts ammonium bromide, 25 parts salicylic acid, and 50 parts acet-anilide.

2.)—ANTISEPTIN, according to GOLDMANN (*Pharmazeutische Zeitung*), consists of about 85 parts zinc sulphate, 2.5 parts zinc iodide, 2.5 parts thymol, and 10 parts boric acid.

3.)—SOMNAL, according to RITSERT (*Pharmazeutische Zeitung*), is an alcoholic solution of ethyl-urethane and chloral hydrate.

LITHIUM BROMIDE is reported by Prof. R. BARTHALOW to be about the best remedy for *muscular rheumatism*.

MENTHOL WITH AMMONIUM CARBONATE is recommended in *hay fever* by Dr. L. WAINWRIGHT as being more efficacious than simple MENTHOL. It is used from an ordinary smelling-bottle like other smelling-salts.

QUININE, according to a contemporary, may be *disguised* by admixture with the following.—Licorice-mass, hot water, glycerin, of each 2 parts; dissolve and cool, then add 1 part each of alcohol and water. Each teaspoonful of this mixture—it is claimed—will mask 3 grains of quinine.

NAPHTHALENE, 5 grains, dissolved in chloroform 1 dram, is reported to relieve *toothache*.

EUCALYPTUS OIL, mixed with petrolatum, 1:16, is recommended by Dr. L. BROWNE as an application to the nostrils in *dry nasal catarrh*.

TURPENTINE OIL has been lauded by Prof. GALTIER of Lyons as the most efficacious remedy for the destruction of the poison of hydrophobia. The wound is carefully washed with an abundance of the oil.

GATHERED FORMULAS.

10 and 11.—Mercury Cyanide in Diphtheria.

[SELLDEN.]

—MIXTURE.—

Mercury Cyanide..... 0.02 gramme [$\frac{1}{3}$ grain].
Aconite Tincture (U. S.) .. 0.5 “ [8 min.].
Crude Honey..... 50 grammes [$1\frac{1}{2}$ fl. oz.].
Distilled Water..... 150 “ [5 “ “].

Tablespoonful hourly, day and night.

—GARGLE.—

Mercury Cyanide..... 0.03 gramme [$\frac{1}{2}$ grain].
Peppermint Water..... 300 grammes [10 fl. oz.].

Use 2-4 times an hour.

12.—Silver Chloride in Whooping-Cough.

—INHALATION.—

Silver Chloride..... 0.1 gramme [$1\frac{1}{2}$ grains].
Distilled Water..... 1 litre [1 quart].
Sodium Thio-sulphate.. enough to dissolve the above.

Inhale every 3 hours.

13.—Extract Cannabis Indica in Migraine.

[M. FEDERICI—*La Semaine Médicale*.]

—PILLS.—

Extract Cannabis indica..... 0.2 gramme [3 grains].
Quinine Valerianate. } of each, 3 grammes [45 grains].
Caffeine Citrate..... }

Make 20 pills!—Two or three pills daily.

14.—Pyoktanin in Conjunctivitis.—[VINDEVOGEL]

—*Org. de la Fratern. Méd.*, Bruxelles.]

—COLLYRIUM.—

Pyoktanin..... 0.08 gramme [$1\frac{1}{4}$ grains].
Cocaine Hydrochlorate... 0.2-0.4 “ [3-6 “].
Distilled Water..... 8 grammes [2 fl. drs.].

Instil every 10-20 minutes, or every $\frac{1}{2}$ -1 hour,—according to circumstances.

15 and 16.—Pyoktanin in Cholera.—[THE SAME.]

—GRANULES.—

Pyoktanin..... 0.04 gramme [$\frac{2}{3}$ grain].

Aconitine Nit., *cryst.* }
Strych. Hydrochl.... } of each, 0.005 “ [$1\frac{1}{2}$ “].
“ Arseniate.... }

Magnesium Sulphate..... 0.1 “ [$1\frac{1}{2}$ “].

Strained Honey..... a sufficient quantity.

Divide into 20 granules!—One or two every 5-15 minutes, until 6-12 have been taken. Then take the following:

—GRANULES.—

Pyoktanin..... 0.04 gramme [$\frac{2}{3}$ grain].

Strych. Hydrochl. }
“ Arseniate. } of each, 0.005 “ [$1\frac{1}{2}$ “].

Magnesium Sulphate..... 0.1 “ [$1\frac{1}{2}$ “].

Strained Honey..... a sufficient quantity.

Divide into 20 granules!—One or two every $\frac{1}{4}$ hour.

17.—Treatment of Uncontrollable Vomiting and Acute Gastralgia.—[STUVER—*Centralb. Ges. Ther.*]

—MIXTURE.—

Cocaine Hydrochlorate..... 0.1 gramme [$1\frac{1}{2}$ grains].

Antipyrine..... 1 “ [15 “].

Distilled Water..... 100 grammes [$3\frac{3}{8}$ fl. oz.].

Teaspoonful every $\frac{1}{2}$ -1 hour.

18.—Podophyllin in Habitual Constipation.—

[*Centralb. f. d. Gesam. Therap.*]

—MIXTURE.—

Podophyllin..... 0.4 gramme [6 grains].

Malaga Wine..... 50 grammes [2 fl. oz.].

Teaspoonful at night.

STRONTIUM BROMIDE—according to Dr. FÉRE—produces results in *epilepsy* identical with those obtained from potassium bromide in similar doses.

HOT WATER to the head is recommended by Prof. KEEN to stimulate the patient in case of *heart failure* through loss of blood and shock during operations on the brain.

LACTIC ACID 1 part, SALICYLIC ACID 1 part, COLLODION 8 parts, mixed, has been recommended as an excellent application to *corns* and *warts*, effecting their removal in a short time.

SODIUM BI-SULPHITE is reported to produce excellent results in *tonsillitis* and *coryza*. Tablespoonful doses of a saturated solution are given every hour or two for 24 hours, or longer if necessary,—the disease being usually controlled in 24 hours.

POTASSIUM PER-MANGANATE in aqueous solution (1 : 10-30), applied by means of compresses frequently renewed, is mentioned by Dr. ZUBOFF as a most excellent application for *burns* of the first and second degrees. Weaker solutions are said to speedily allay the inflammation resulting from blisters, and to relieve pain while preventing suppuration.

EDITOR'S NOTES.

MEDICAL INSTITUTIONS.

SCIENTIFIC WORK OF THE NEW YORK ACADEMY OF MEDICINE, FOR JANUARY, 1892:

STATED MEETING, January 7, at 8 p. m.—“Final Results in Tubercular Osteitis of the Knee, in Children. Analyses of about 250 cases.” Presentation of Patients illustrating Results after various Methods of Treatment. By V. P. GIBNEY, M.D.—Discussion by Drs. L. A. Sayre, Chas. McBurney, N. M. Shaffer, A. G. Gerster, C. Phelps, J. A. Wyeth, R. W. Whitman, and others.

SECTION ON NEUROLOGY, January 8, at 8 p. m.—Tumor of the Cerebellum—Operation. Reported by Drs. M. A. STARR and J. E. WEEKS. Discussion by Drs. J. E. Weeks, L. C. Gray, J. A. Booth, C. L. Dana, E. D. Fisher, and others.

SECTION ON GENERAL SURGERY, January 11, at 8:15 p. m.—Exhibition of specimens illustrating Tumors of the Intestinal Tract, Intestinal Suture and Anastomosis.—“Intestinal Anastomosis between Ilium and Sigmoid Flexure for Obstruction from Neoplasm in Transverse Colon,” with exhibition of the patient. By R. F. WEIR, M.D.—“Report of a case of Intestinal Suture and Anastomosis, with observations.” By ROBERT ABBE, M.D.

SECTION ON PÆDIATRICS, January 13, at 8:15 p. m.—“The Contributions of 1891 to our knowledge of Diphtheria.” By J. LEWIS SMITH, M.D.—History of a Case of Infantile Pneumonia traversing three dangerous crises. By M. PUTNAM JACOBI, M.D.—Appendicitis. 1. Notes on two Cases. By E. H. GRANDIN, M.D. 2. Report of one Case. By R. A. MURRAY, M.D. 3. Discussion. When to Operate.

SECTION ON GENITO-URINARY SURGERY, January

14, at 8:15 p. m.—Presentation of Patients and New Instruments. Reports of Cases.—“A Peculiar Accident during Litholapaxy.” By L. BOLTON BANGS, M.D.—“Differential Diagnosis of Tuberculosis and Syphilis of the Joints and Genitals.” By P. A. MORROW, M.D.—“Anatomy of the Bladder.” By J. E. KELLY, M.D.

SECTION ON ORTHOPÆDIC SURGERY, January 15, at 8:15 p. m.—Presentation of Cases.—“The Use of Iodoform in the Local Treatment of Strumous Joint Disease.” By J. D. BRYANT, M.D.

SECTION ON OPHTHALMOLOGY AND OTOTOLOGY, January 18, at 8 p. m.—Presentation of Cases.—“Some Suggestions concerning the Prognosis and Treatment of Chronic Non-suppurative Inflammations of the Middle Ear.” By E. B. DENCH, M.D. Discussion by Drs. Knapp, Pomeroy, and others.

SECTION ON GENERAL MEDICINE, January 19, at 8:30 p. m.—A Clinical Lesson in Physical Diagnosis. By Drs. LOOMIS, JANEWAY, DELAFIELD, A. A. SMITH, HEINEMAN, F. W. JACKSON, and others.

STATED MEET., Jan. 21, 8 p. m.—“The Elements of Contagion in Tuberculosis.” By T. MITCHELL PRUDEN, M.D.—“The Necessity and Feasibility of Efforts to prevent the spread of Pulmonary Tuberculosis.” By EDWARD G. JANEWAY, M.D.—“The Prevalence of Consumption in the United States.” By JOHN S. BILLINGS, M.D., U.S.A.—A consideration of the following propositions: 1. The influence of recent investigations concerning the Contagiousness of Pulmonary Phthisis. 2. What Rules can the Profession properly advocate for the Government of the General Public? Discussion by Drs. A. Jacobi, J. West Roosevelt, A. H. Smith, W. H. Porter, C. G. Currier, and others.

SECTION ON LARYNGOLOGY AND RHINOLOGY, January 27, at 8:30 p. m.—Presentation of New Instruments and Apparatus.—Exhibition of Clinical Cases. History and Exhibition of a Case of Bony Growth removed from the Superior Maxillary by Rouge's Incision. By WALTER F. CHAPPELL, M.D.—“A Comparison of some recent Methods for removing Adenoids from the Vault of the Pharynx.” By H. HOYLE BUTTS, M.D.

SECTION ON OBSTETRICS AND GYNECOLOGY, January 28, at 8 p. m.—Presentation of Specimens.—“Diagnosis of Pregnancy between the Second and Eighth week by Bi-manual Examination.” By ROBT. L. DICKINSON, M.D.—“The Preventive Treatment of Mastitis.” By VICTORIA M. DAVIS, M.D.

NEW BOOKS.

FOOD AND DIETARIES; A Manual of Clinical Dietetics. By R. W. BURNET, M.D.—L. Blakiston, Son & Co., Philadelphia. 1891.

To commence a volume with a good scientific sentence commends a further perusal; at least, therefore, we feel that the quoting of the opening sentence of Dr. BURNET's book will in itself recommend the efforts of the author. It is as follows: “A knowledge of the physiology of digestion lies at the root of sound practical dietetics.”

The different constituents of food and the age of the individual, his circumstances and surroundings in relation to these elements, are considered in a brief but terse manner.

The views on the albuminoids are practical and founded upon a sound scientific basis. In one place he says: “Life is not sustained by a non-nitrogenous diet, but the carbo-hydrates and fats, when combined with the albuminoids, are the great force- and heat-producers.”

In his consideration of the digestive organs he says: “It will suffice here to mention these four essentials of vigorous digestion, namely, a healthy condition of the mucous membrane, a due supply of normal gastric juice, sufficient nervous stimulus, and a good muscular tone, to insure proper rhythmic movements.” This will certainly do for gastric digestion, but hardly for the more important intestinal. The digestion which takes place in the intestines and liver is ignored, and for what reason we do not know. The latest ideas on this subject place the stomach and its functions on a par with the crop of the fowl. When one considers the great amount of work done in the intestines, it is very evident that the gastric preparation forms a very small part of the process of digestion. This is very satisfactorily proved by the disappearance of most gastric symptoms when the different fluids poured into the intestinal tube become normal and capable of fulfilling their office. Many authors go so far as to consider the stomach as a masticating organ only.

We are glad to notice the author's praise of the me-

dicinal value of alcohol, especially as so many of the profession are becoming extremists in the condemnation of that drug. He says: “A small or moderate amount of alcohol is useful in all cases where the action of the heart is weak. This may occur either in the later years of life or during convalescence from some acute illness, as well as during the course of acute disease when there are signs of heart failure. The stimulant will, in these circumstances, help to sustain life, and so tide over a time of danger; and it is besides useful in so far as it increases the appetite and aids the digestion of food. Alcohol without food is decidedly dangerous, and life cannot be continued for any length of time upon it alone.”

The book is mainly composed of the various methods of dieting different diseases, among them being nephritis, diabetes, fever, gastritis, etc.; and closes with a number of valuable methods for the preparation of palatable and nutritious foods for the sick.

J. W.

PTOMAINES AND LEUCOMAINES; or, The Putrefactive and Physiological Alkaloids. By VICTOR C. VAUGHAN and FREDERICK C. NOVY.—Lea Brothers.—1891.

The authors of this volume have collected, arranged, and systematized in a most creditable manner much that has been written in the pages of medical and scientific journals, monographs, etc., concerning the basic substances formed during the putrefaction of organic matter. The subject has always been one of interest to the physician, for the better he is acquainted with the nature of those poisons which are introduced from without, and those which are generated within the body, the better is he equipped to explain the etiology of many diseases and combat the progress of conditions abnormal to health and life. The study of infectious diseases has been pursued with great diligence in recent years, and brilliant results have been reached. It is now an accepted fact that each pathogenic micro-organism produces its own specific poison. In infectious diseases the chemical poison, it is admitted, is really formed within the body, while the active agent, the germ, causing the formation of the poison, is introduced from without. On the other hand, the autogenous diseases owe their existence to disturbances between tissue, metabolism, and excretion. The treatment of the former, as the authors show, consists in attempts to destroy the micro-organism which has already found lodgment within the body, or, failing in this, to antagonize the effects of the poison and to maintain life until the germ, weakened by successive generations of reproduction or poisoned by its own products, ceases to maintain its ill effects. The autogenous diseases are prevented by keeping the functions of the body in perfect harmony, and are treated by hastening elimination or by retarding or modifying metabolism, or by both.

The authors have brought together a mass of informa-

tion difficult to find elsewhere. There is probably no work of the kind so concisely and well arranged. The chemical formula of every known ptomaine and leucomaine is given, along with full data on solubility, etc.

The relation of deficient oxidation of the proteids to disease, resulting in fermentative and putrefactive changes in the system, might have found an excellent place in this volume; for deficient oxidation gives rise to certain ptomaines, which by their presence produce a toxic condition, the forerunner of many evils otherwise unexplainable. The subjects treated, however, are well handled, and we gladly commend the book. J. H. C.

THREE THOUSAND QUESTIONS FOR MEDICAL STUDENTS; Arranged for Self-Examination.—P. Blakiston & Sons, Philadelphia. 1891. 24mo.

This little book of queries is divided into nine different sections, one each for Anatomy, Physiology, Materia Medica and Therapeutics, Chemistry, Practice of Medicine, Surgery, Obstetrics, Gynecology, and Diseases of Children.

So far as the questions *per se* are concerned, they are good and can be utilized at times to good advantage for self-examination. Attached to each question is a reference to certain compendiums rather than to the more standard works devoted to the nine branches of medicine; which takes away from its value unless a series of such extracts be in possession of the reader.

The book, however, is interleaved, which will easily enable the student to make the proper references to the larger works for his future use. By following this method the book can be made very valuable not only for undergraduates, but also for graduates intending to compete for hospital, army, or navy appointments.

BOOKS RECEIVED.

STRICTURE OF THE RECTUM. By CHARLES B. KELSEY, M.D.—8vo., 48 pp.

ESSENTIALS OF MEDICAL PHYSICS. By FRED J. BROCKWAY, M.D.—W. B. Saunders, Phila., 1892. 16mo., 330 pp. Price, \$1.00.

OBITUARY.

HENRY INGERSOLL BOWDITCH, M.D., died in Boston, Mass., on January 14, at the age of eighty-four. Dr. Bowditch was born in Salem, Mass. He was graduated at Harvard in 1828, took his medical degree in 1832, and studied in Paris from 1833 to 1835. He was Professor of Clinical Medicine at Harvard from 1859 to 1867, Chairman of the State Board of Health, 1869-'79, member of the National Board in the latter year, Surgeon of Enrollment during the Civil War, President of the American Medical Association in 1877, and physician at the Massachusetts General Hospital

and at Boston City Hospital from 1868 to 1872. To Dr. Bowditch is due the discovery of the law of soil moisture as a potent cause of consumption in New England. Dr. Bowditch was made an abolitionist by the mobbing of Garrison in 1835, and worked earnestly in the cause. "He was the first in Boston," said Frederick Douglass, "to treat me as a man." He was the author of a "Life of Nathaniel Bowditch for the Young," and of several medical publications.

DR. HENRY FRASER CAMPBELL died December 15, 1891, at his home in Augusta, Ga., after a lingering illness. He was born in Savannah, Ga., February 18, 1824. He began the study of medicine when fifteen years of age, and received his diploma as Doctor of Medicine in March, 1842, from the Medical College of Georgia—now the Medical Department of the University of Georgia. He at once established himself in practice in Augusta in 1862, when he removed to Richmond, Va., where he resided during the War, and where he had charge of the Georgia Military Hospitals, and was one of the Army Medical Examining Board of the Confederate States. He was Professor of Anatomy in the Medical College of Georgia from 1853 to 1867 (with the exception of the period of the War). He was Professor of Surgery in the New Orleans School of Medicine—1867-8, after which he returned to Augusta to accept the Professorship of Operative Surgery and Gynecology, created so as to secure him. In 1881, he was elected to the Chair of Principles and Practice of Surgery, which position he practically held up to the time of his fatal illness. To Dr. Campbell is due the credit of discovery (in 1850) of the excito-secretory system of nerves. As a gynecologist and surgeon, his contributions have likewise been famous.

DR. DANIEL AYRES died on January 18 at his home, No. 91 Lafayette Avenue, Brooklyn, at the age of sixty-nine. He was born in Jamaica, L. I., on October 22, 1822. His father was a wine merchant in New York. He was educated at Wesleyan University, Middletown, Conn., and at Princeton, being graduated from the latter in 1842. He then studied medicine in New York and received his degree from New York University in 1844. He was identified with the Brooklyn City Hospital and the Long Island College Hospital, and was Professor of Clinical Surgery in the latter for years, being Professor Emeritus at the time of his death. He gained a great reputation as a specialist, and amassed a fortune in the practice of his profession. He received the degree of LL.D. from Wesleyan University in 1856, and at different times he made gifts to that college aggregating \$275,000. When the Hoagland Laboratory, in Brooklyn, was opened, he gave \$10,000 endowment to it. He left a wife and two sons, both physicians.

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OPEN DISCUSSIONS.

It is with pleasure we note even the very first of the MEDICAL REPORTS in this volume (pp. 3-15), "On the action of the Mercurials and Iodides," has met with attention from physicians in near and remote places, as shown by various opinions uttered with regard to the theses there laid down. These opinions, as was to be expected, differ amongst themselves. Some are in hearty accord with those enounced in the article alluded to; others run partly or wholly counter thereto.

An utterance of the latter category is published in these columns to-day under the head of "Stability of Inorganic Compounds (pp. 141-144)." This counter-statement, as such, is no less welcome to us than the original statement was. Let others follow, *on either side* of the question.

It is a satisfaction thus to know that the first-mentioned article has, in a measure, served its purpose in bringing other authors to the front with candid statements as to their views and observations upon these vital questions concerning the chemico-physiological phenomena of animal life.

MERCK'S BULLETIN will always be found ready to present with impartiality all opinions, personal observations, and experimental research upon every and all subjects of importance to the medical profession.

It is hoped that every subject presented in these columns will call forth a vigorous discussion of the points in question, because it is clearly evident that this is the only method by which the deeper and intricate truths of the medical sciences can be clearly and thoroughly elucidated.

In this connection it is well to note the fact that much, if not most of the experimental work which has been done, has of necessity been upon the lower animals. The experiment itself disturbs the normal phenomena and at once becomes, in a measure, a pathological problem.

For these two reasons, to say nothing of others, in dealing with these consummately intricate chemico-physiological problems, the more evidence that can be obtained from different sources,—together with the varied light that will thus be thrown upon the subject,—the more good will ultimately result, by developing a more concise and exact knowledge.

We therefore would again say that our columns are always open for vigorous discussion of all scientific problems, and in due time we shall endeavor to sum up the evidence adduced.

PREDISPOSITION TO TUBERCULOSIS.

Tuberculosis has been removed from the list of inherited diseases. It now stands committed by the science of biology to the category of purely contagious diseases,—as one which must in every instance be acquired after birth.

Consequently the discussion of the heredity of tuberculosis is no longer admissible in scientific and practical medicine. But a careful consideration of the pre-existing physiological and nutritive tone of the system in general, and its influence in rendering the individual susceptible to the contaminating influences of the tubercular contagium, becomes more emphatically than ever a matter of paramount importance. First,—because it has been already shown that the propagation of the disease by inoculation cannot absolutely be prevented. Second,—because the element of heredity is no longer an unknown and entangling quantity in every discussion upon this important question.

Predisposition to tuberculosis can now be discussed single-handed as a simple and scientific nutritive problem, without the intervention of the mysterious and vaguely understood hereditary tendencies.

The removal of tuberculosis from the list of inherited diseases very positively aids in sustaining the theory that many if not all of the chronic maladies developed throughout life do not have their origin in a transmitted specific poison, but are more

often directly traceable to false methods of feeding and imperfect nutritive conditions, which in themselves cause the lesion or produce the proper soil upon which contagium can be successfully inoculated.

Organic chemistry teaches that the animal economy cannot take a pure starch and saccharine compound and join to it free nitrogen and thus form a proteid substance. The same law also holds true for fats. Therefore, so far as nourishing or building up any of the fundamental structures of the body is concerned, starch, and sugar represented by the diffusible glucose, and also fat, furnish no nutriment to the system in the stricter application of the term. They are of course necessary in so far as they yield heat, energy, and lubrication, and by the mechanical presence of the free oil in the interstices of the proteid fibres give form and often rotundity to the system. By way of illustration the proteid matter may be compared to the bricks and mortar out of which the house is constructed; the starch, sugar, and fat representing the workmen, which are equally essential to its construction as the material out of which the house can be built.

The starches, sugars, and fats are all capable of being oxidized by the system more rapidly than are the proteid bodies, and when they are taken too abundantly into the system, the oxygenating capacity of the animal economy is of necessity overtaxed; thus leaving a deficient quantity of oxygen for the proper transformation of the proteid substances. As a result of this imperfect oxidation of the proteid substances, all forms of retrograde conditions are developed.

The proteids which are derived from the vegetable kingdom, being of a higher

nitrogenous composition than the animal albumin, require a larger complement of oxygen for their perfect metamorphosis and katabolic destruction within the system, and consequently are less perfectly available for nutritive assimilation.

This—together with the fact that the relative percentage proportions existing in the *vegetable* kingdom between the proteid, starch, sugar, and fat compounds is such that the highest degree of nutrition, heat, and energy cannot be produced with the smallest outlay of oxygen and the production of the minimum amount of nitrogenous excretory matter—clearly illustrates the reason why the higher nutritive powers deteriorate upon a vegetable diet.

If the mother, while carrying the child *in utero*, is fed upon a poorly selected diet, her nutritive powers must deteriorate, and the offspring in a measure partakes of this degeneration, and thus the soil of predisposition to tuberculosis and disease in general is prepared.

The mother, when the child is finally born, is often too enfeebled to supply a thoroughly good quality of milk to this already deteriorated infant; or lactation may be entirely suspended. In either case the child is forced to depend upon artificial feeding for its supply of nutritive material to sustain its growth and development. Again, feeding in the wrong way is often instituted, instead of selecting an animal proteid-and-fat diet pure and simple, such as milk derived from some other source. The child is often, even in its early infancy, placed upon a diet of artificially compounded food-stuffs, in which the animal proteid and fat have been largely replaced by vegetable proteids and fats, starch, and saccharine compounds;—

all of which is in direct opposition to the dictates of Nature. While it may make the child grow fat, it is slowly undermining the higher nutritive vitality and still more effectually laying the foundation for the invasion into the human system of all forms of contagium, and particularly that of tuberculosis. Such children have long since been known to bear disease poorly, and often to die from apparently trivial causes.

As age advances, the appetite grows to choosing by preference the starch and saccharine compounds, so luscious to the taste. They are also stimulating, by virtue of their conversion, in the system, into alcohol-like compounds; so that the whole system is roused into apparent brilliancy and major activity. But as the years advance still further, how many of these brilliant youthful beings have fallen victims to this deadly malady tuberculosis, and collapsed as the morning-glory fades with the rising of the sun! And all because this continued process of false feeding has undermined the constructive powers of the system, until sound proteid tissue has given place to retrograde protoplasm, upon which the micro-organism known as the *bacillus tuberculosis* can be successfully engrafted. Here it continues to flourish at the expense of human life, until the victims of tuberculosis are counted not by hundreds and thousands but by the millions and billions.

Fully appreciating this every-day fact, the physician, by becoming thoroughly familiar with the chemistry and physiology of diet, digestion, absorption, and assimilation, will at once become master of the situation. So that by intelligently directing the diet in accord with the established laws of Nature, during pregnancy,—and

on throughout infancy, youth, and early maturity,—the highest degrees of nutritive vitality will be fully established and maintained; until a devitalized and deteriorated system, specially predisposed at every point to admit, harbor, and nourish the tubercular contagium, will be almost unknown.

When all that can be effected against the predisposition to the contagion has been thus accomplished,—and at the same time the liability to inoculation has been reduced to the minimum, by outward measures, as indicated in our last issue,—tuberculosis will be relegated to the list of exceptional diseases, and will no longer hold a first place among life-destroyers, and human happiness will be greatly enhanced.

DIGITALIS CUMULATION.

Much has been said and written concerning the so-called accumulative action of Digitalis. Careful scrutiny of the standard works upon materia medica and therapeutics throws but little definite light upon its methods of action. The *modus operandi* of this cumulative phenomenon is certainly far from being satisfactorily elucidated.

Little evidence is produced to prove that the drug has been stored up in the system in its original form, and then eliminated in large quantities; following which all the bad effects are suddenly dispelled as quickly as they were produced.

On the contrary, the weight of evidence tends to establish the fact that the active glucosidal principles of the drug are rapidly decomposed within the system into carbon-di-oxide and water, and that they are never found in their original form in the excretions of the body.

Therefore, the assumption of a quiet accumulation of a large quantity of the drug within the system, which is finally let loose at once upon the heart, is hardly tenable, and a more logical explanation must be sought.

By some, it is assumed that a high tension of the renal arteries is established, which produces a condition synonymous with suppression of urine. Then, to this secondary or uremic poisoning thus induced, the symptoms commonly classed as those of “cumulative action of digitalis” are ascribed.

While symptoms simulating digitalis poisoning can be produced thus, experimentally, in a healthy subject, when the drug is pushed rapidly to its full limit,—this method of action does *not* appear to hold true in ordinary clinical experience. For it rarely happens that the renal functions are suspended to this extent in ordinary cases of digitalis poisoning, even in those instances in which death finally results.

The cumulative action of digitalis appears to be more directly exerted upon the heart,—the kidneys acting freely even in the presence of the depressed action of the heart, and death usually coming on quickly by a sudden arrest of the heart's action.

How then can the cumulative effect of digitalis be rationally explained? By keeping closely to the well-known actions of digitalis and combining these actions with the physiological laws that govern the nutritive processes of the body, a perfectly rational solution of the so-called cumulative symptoms is developed.

Digitalis increases the motor force of the heart, the muscular contraction is more intense, the expenditure of cardiac

energy is increased, and the katabolic transformation of the muscular elements augmented.

This in itself would deteriorate the muscular strength; but digitalis is further classed as a direct muscle poison. Digitalis, therefore, at first apparently increases the working power of the heart muscle, and all the cardiac symptoms are ameliorated. The digitalis also increases the arterial tension, and by this change in the vascular pressure greatly increases the resistance offered in front of the heart, which is now acting as a mechanical pump.

This fact alone increases the work to be accomplished by the cardiac muscle, and as a necessary sequence the rapidity of the heart must be slowed down, to increase its working capacity.

Up to this point the heart has suffered no material damage from the action of the drug, and its working capacity has been enhanced. But physiology teaches that the high arterial tension increases the speed in the arterial capillary system, and most positively cuts down the time for nutritive interchange between the blood and the protoplasmic tissues in the inter-vascular protoplasmic spaces.

Applying this same law in connection with the action of digitalis upon the heart muscle, the result is that the drug is slowly but persistently cutting down the nutritive supply to the cardiac muscle.

This being considered, in addition to the increased work imposed upon the heart muscle, and with the fact that digitalis *per se* is a muscle poison, — the three factors causing the symptoms of digitalis poisoning are clearly apparent.

The working capacity of the heart is augmented, the cardiac muscle is poisoned, and at the same time the relative

quantity of nutrition distributed to the organ is positively diminished. But one thing can follow: degeneration of the muscular fibres constituting the ventricular walls. At first the heart's action is slowed to meet the increased demands; but soon, like every other degenerated heart, it becomes rapid and feeble in action, then irregular, or stops in diastole at some slight exertion. If the drug be administered in homeopathic doses, no perceptible deterioration of the heart will be apparent. But when a thoroughly reliable preparation of digitalis is used and the drug is exhibited continuously up to the full physiological limit, the heart muscle is invariably damaged;—thus explaining the oft-repeated remark that digitalis proves unsatisfactory in permanently alleviating cardiac affections.

UNCERTAINTY OF SUGAR-TESTING IN URINE.

It is almost a daily duty of practicing physicians to examine the urine in cases, or suspected cases, of diabetes. It is also the common rule to use FEHLING'S copper test, probably because this method was taught at the commencement of their professional careers, and it has not been thought worth while to inquire into the reliability of that reagent. It is for this reason that attention is here drawn to the matter, and a few of the compounds which are found in the urine and which reduce copper salts, are considered.

The state of decreased vitality and functional derangement may be said to be the most common condition of the human organism in these days of overfeeding and disregard or ignorance of the fundamental chemico-physiological laws, which govern the animal economy. This func-

tional perversion, however transitory, is the precursor of abnormal metabolic activity with its consequent suboxidation of the nutritive material, and its conversion into incomplete products of tissue waste.

The most common products of incomplete transformation of the proteids which appear in the urine, are uric acid, creatinine, and hippuric acid. These all reduce FEHLING'S solution, and the reaction cannot be distinguished from that of dextrose.

After the medicinal and surgical use of carbolic acid, gallic acid, or other aromatic compounds, the color of the urine is noticed to be much darker than normal; and that color continues to deepen on further exposure to the air. This phenomenon is due to the splitting-up of these compounds into other substances or their isomeres, such as pyrocatechin, hydroquinone, and similar bodies, and their oxidation; or to the formation—as the result of intestinal decomposition of the proteids—of salts of these and other substances, known as ethereal sulphates. These reduce FEHLING'S solution, and their reduction, in the absence of a better knowledge of intestinal fermentation, is very hard to distinguish from that of dextrose.

The most common member of this group, and the one which is most continuously present in the urine, is the potassium compound of pyrocatechin known as catechol-sulphate of potassium. There are other ethereal sulphates, which appear as the result of derangement of the liver, and the consequent supplying, to the intestinal tube, of a poor quality or quantity of bile, which very greatly favors decomposition within the alimentary canal. The best known of these, which are most likely

to appear in the urine, are the phenol-, cresol-, indoxyl-, and skatoxyl-sulphate of potassium, with a large number of other compounds belonging to the salicylic or oxybenzyl, indigo, and tri-methyl-benzene groups.

Another substance which appears under certain circumstances or after the administration of drugs like chloral hydrate, butyl-chloral, ortho-nitro-toluol, camphor, morphine, etc., or after chloroform narcosis, is glycuronic acid. This compound has the formula, $C_6H_{10}O_7$; and, in that it readily responds to FEHLING'S and BÖTTGER'S tests and rotates polarized light to the right, is probably very closely allied to the carbo-hydrates and likely to be mistaken in its reaction for dextrose. The salt of it which is most often present in the urine is potassium glycuronate, although indoxyl and skatoxyl compounds of it are common. The detection of this substance is of more practical importance than is generally conceded, in the examination for life insurance. Several cases are recorded, especially one by ASHDOWN, where individuals have been refused because some compound—supposed to have been dextrose—reduced FEHLING'S solution and diabetes was thought to exist. The presence of glycuronic acid or its salts in the urine does not seem to endanger life, or appear to be of great pathological significance in itself, while the continuous finding of dextrose means a most serious affection. It is important therefore to differentiate between the two.

Inosit and lactose are two members of the carbo-hydrate series. The former is found in small quantities in normal urine, but in larger amounts in certain cases of BRIGHT'S disease. Lactose has been found by many authorities in the urine of

nursing women, or just after they have weaned their offspring. These both reduce FEHLING'S solution.

Thus, a few of the substances which make the test by FEHLING'S solution uncertain, have been considered most briefly, but still serve to show to a certainty that this method is not to be conclusively re-

lied upon. The only way in which we can eliminate the possibility of mistake in examining suspected urine for diabetes, is to subject it to all the known tests for sugar; unless the *fermentation test* be used. This last, while not so convenient, is the most reliable both quantitatively and qualitatively.

MEDICAL REPORTS

TO "MERCK'S BULLETIN."

MECHANICAL THERAPEUTICS AS APPLIED TO CERTAIN FORMS OF INFANTILE PARALYSIS AFFECTING THE LOWER EXTREMITIES.

By T. HALSTED MYERS, M.D.

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It is the custom of the great majority of medical men who recognize the importance of mechanical treatment in disabling forms of Infantile paralysis, to refer these cases to some instrument maker for braces, leaving it to the judgment of this dealer what braces to apply. Now I do not say that a good brace cannot be so procured; one well made, neat, light, and perhaps suitable to the case. But just here is where there is a doubtful quantity; these men know nothing, or next to nothing, of the actual condition of the muscles involved by the paralysis, nor yet even of the anatomy of the parts; their knowledge is all practical and therefore, while experience will make them capable of manufacturing braces suitable for any ordinary condition, they are not able to recognize the variations from the commoner forms of paralysis and the new indications so presented, and they do not of course know when to apply, or when to modify, or when to discontinue the use of their apparatus. I do not mean to write a tirade against instrument makers, and if this matter were not forced on my attention very often, I would probably not recognize how much valuable time is lost and how much damage is done in this way. My object is to show that the *proper* use of mechanical thera-

peutics is of very great value in these cases, and that the time of application of braces, their nice adjustment to the needs of each case, and their perfect fit, are matters of prime importance; I wish also to mention some of the forms of apparatus I have found most serviceable in a rather extensive experience with this class of cases.

The importance of this subject is apparent when we note that HOFFA (*Lehrbuch der Orthopädischen Chirurgie*), has calculated that about six and seven-tenths per cent of all deformities are the result of Infantile paralysis.

In the first place, a badly planned and ill-fitting brace will do more harm than good.

Designing and applying these braces is, I think, one of the most difficult parts of an orthopedic surgeon's work, yet the result amply repays the time and trouble it costs; for instance, the lack of fat in the affected limbs, and the prominence of the bony parts, together with the low grade of nutrition of the soft parts, make it very important that there should be no undue pressure made by the braces though they must fit accurately to insure comfort, safety and utility.

For many years it has been the custom at ST. LUKE'S HOSPITAL and the N. Y. ORTHOPEDIC DISPENSARY, to adjust supporting braces, as light as practical, to cases of Infantile paralysis a few weeks after the onset of the disease; that is, as soon as the effects of the severe spinal congestion accompanying the destruc-

tive lesion have passed off and allowed us to locate the muscles seriously impaired. The idea being to prevent as far as possible the deformities apt otherwise to appear later-on.

The onset of this form of paralysis is well known, and I refer to it in passing only to call attention to Dr. STARR's strong recommendation of local treatment to the spine in the earliest stage by means of counter-irritation, ("Familiar Forms of Nervous Diseases," page 184), and to advise free catharsis at once. No form of treatment can modify to any great extent, however, it seems to me, the cord lesion, for Dr. HERTER in his studies on experimental myelitis (*Journ. of Nervous and Mental Diseases*, April, 1889), found that paralysis was caused in the rabbit by cutting off even for a very short time the circulation in the cord. Paraplegia, he found, followed compression of the vessels (abdominal aorta and vena cava) almost instantaneously; after compression for less than three-quarters of an hour the paralysis wore off rapidly, but if continued for more than an hour the paraplegia became a permanent condition, and did not diminish during the life of the animal. He also found as early as the 23d day, simple atrophy of the majority of muscle fibres and a hyperplasia of the interstitial connective tissue. It is this interstitial growth which later-on fixes the muscles in their abnormal positions. Some of the muscle fibres were normal and some were only slightly wasted, but the great majority were greatly atrophied and in a state of granular degeneration.

If then connective-tissue proliferation occurs thus early, it is well to guard against its effects early. There is another and very important reason for the early use of braces, and that is, that the weaker the muscle the more liable is it to become overstrained by accident or otherwise with bad result. Muscles however healthy can be damaged by overstrain, and over-exercise will not develop but rather retard their development, as we see so often in the over-trained athlete. It has seemed to me that this principle applies even more forcibly to

partially paralyzed muscles, and that they need most careful protection fully as much as regular and regulated exercise.

The most common forms of infantile paralysis are those affecting the legs; legs and thighs; legs, thighs and trunk, in the order named; STARR (*opus cit.*) found in 31 cases the *permanent* paralysis was divided as follows: Both legs, 9 cases; Right leg, 6; Left leg, 6; Right arm, 3; Left arm, 1; Both arms, 1; Arm and leg, 2; Trunk and both legs, 1; Trunk and left leg, 1; Both legs and both arms, 1. He also found that in the large majority of cases in which one or both legs were affected, the paralysis was finally limited to the muscles below the knee; the anterior tibial, posterior tibial, and peroneal, in frequency in the order named.

If we have a paralysis of the anterior tibial group, the position of the foot will be almost a pure equinus. Normally extension of the foot is in a direction downwards and inwards; the action of the posterior group of leg muscles would also draw the foot into equino-varus, but the varus is opposed in this case by the action of the peroneal group. In these cases we use a light brace, attached to the shoe or worn inside of it, with a stop at the ankle joint to prevent toe-drop, getting the counter pressure from a calf band. Flexion at the ankle is desirable as it renders the gait much more elastic. A stop is necessary, as elastic muscles yield under pressure and make possible a strain of the muscles we are endeavoring to protect.

Should we have paralysis of the posterior leg group with that of the anterior tibial group, the peroneal muscles will tend to create an equino-valgus, or a calcaneo-valgus, according to the relative amount of this paralysis. The weight of the body also is transmitted through an axis lying internal to the median line of the foot, and will increase the valgus, which becomes one of the most troublesome forms of deformity to remedy. In the lighter grades this can be best done by an ankle support fastened firmly to the shoe, with a pad to oppose the projection of the scaphoid and a stop to prevent either toe-drop or heel-drop ac-

ording to indications. In the higher grades, which are almost always calcaneo-valgus, a steel sole with leather heel cup to firmly hold the foot is joined to an external bar and calf band; the calcaneus is prevented by a stop, and an elastic muscle may be added if necessary, passing from the calf band to the heel cup. This brace is worn inside the shoe.

Paralysis of the anterior tibial and peroneal groups will result in equino-varus, which is best counteracted by an ankle support attached to the shoe with pads inside and outside, using a stop to prevent toe-drop, and in severe cases, a T-shaped piece of leather passing up outside of ankle and buckling around it over the inner upright. The exaggerated forms of club foot found in neglected cases may be corrected by surgical means or by an appropriate stretching shoe. A description of each of these would be uncalled-for here. The principle of all of them is to exert a force against the contracted tissues greater than their resistance. We must have this force completely under control, so that it can be nicely regulated in amount and time of application. It has been demonstrated that the soft tissues will tolerate a very great pressure for a few seconds without injury. In this way by forcible intermittent traction almost any of these deformities may be overcome with due care and patience, and at the same time the condition of the parts greatly benefited by the increased nutrition so induced.

If we have loss of knee extension power, the knee must be stiffened when walking is attempted, and this can be readily done by anterior pressure at the knee with posterior counter pressure at the thigh and foot. A snap joint is desirable at the knee generally, and then the anterior pressure is made as near the joint, above and below, as possible. The position of the foot in these cases may vary as described above, but the lower part of the knee brace can also readily be adapted to any of these deformities.

If we have also to supply, artificially, power of thigh flexion, a very useful device, for which I am indebted to Dr. SHAFFER, is the use of

traction to immobilize the hip joint. We use in this case a pelvic band with perineal straps, getting the extension from the shoe by means of a key and ratchet. The abdominal muscles thus can carry the pelvis and with it the limb forward. The pelvic band is often advantageous even where a moderate amount of power to flex the thigh remains, as by its pressure on the posterior thigh band, which is sometimes irksome, can be greatly relieved.

In these extensive cases of paralysis a very troublesome complication is met with occasionally in the contracture of the tensor vaginae femoris and the fascia lata, causing flexion and abduction of the thigh, and flexion at the knee joint, with in-knee, and rotation outward of the tibia. These deformities, which occur in neglected cases almost solely, often require correction by surgical means before the proper apparatus can be applied.

It is very unusual for both limbs to be symmetrically affected, and in very bad cases we have sometimes to reinforce the best limb only, and make it a base of support on which to walk with crutches. We must, of course, always carry the brace up to parts not paralyzed.

All these braces should be made as light as possible. To this end, they are usually made with one weight-bearing bar externally, having a lighter bar to support the knee internally, joined to it by the thigh and calf bands. The lateral snap joint we have found superior to the bow, as less liable to get out of order and less noticeable. Steel braces are preferable thus far, as aluminium cannot be brazed, and has not proved of sufficient strength or rigidity for this use.

I have not intended to write in catalogue style, but must be sufficiently explicit to make this article practical, and to show the objects desired in each case.

The method of making a prognosis in the early stages of Infantile paralysis concerns us in this connection, in that it enables us to apply the proper braces in the first instance, and indicates what changes will be required later

on; and I wish to refer here to the valuable study of Dr. YOUNG on the responses to the alternating galvanic current in normal and degenerate muscles, (*Amer. Journ. Med. Sciences*, Oct., 1891), which, as Dr. STARR remarks, enables us by careful measurement to construct a prognostic curve which will give certain hope of recovery to a patient completely paralyzed, or will establish the unfortunate fact of a permanent loss of power.

The trophic changes in the bones, muscles, and ligaments, are in great part unavoidable, and we aim to make the best use of what is left. The maldevelopment of the bones is apparent in the articulations, as well as in the length. The ankle joint often shows, for example, a marked and abnormal lateral motion not due to laxity of the ligaments. Malpositions are also favored by the lack of muscular support: the ligaments are therefore subjected to unusual strain and besides share in the general trophic changes. The early age of the onset of this paralysis, fully two-thirds of all cases occurring in the first three years of life, makes the subsequent interference with growth of very great importance; thus STARR notes a case where there was half an inch shortening of the leg two years after the onset of the disease, which occurred at the twelfth month; and this is not an unusual amount in my experience.

Our endeavor is to protect in every way the weak muscles from overstrain. By keeping the limbs in their normal positions, we enable the weakened muscles to use whatever power they retain to the best advantage, and favor their development as well.

In cases where deformity exists, I have found systematic stretching of the contracted tissues of great benefit. The blood is expressed at each period of tension from the muscles and returns when pressure is removed; thus the circulation and nutrition is improved. This is evidenced by measurements of the affected muscles as well as by their increased power, and by the expressions of comfort from the patients themselves. Dr. SHAFFER has

noted that feet were made warm for a whole day by one stretching, which had been always cold under other methods of treatment.

I have notes on a number of cases where marked and rapid increase of muscular strength occurred, even in cases of long standing, after the braces were applied.

Mechanical therapeutics of course includes massage and electricity, but these aspects of the case I will not touch upon more than to say, that I think they are of considerable service in maintaining the muscular tone, and should be employed in conjunction with braces.

As the power returns to the muscles the braces must be modified accordingly. A brace reaching to the pelvis can be shortened to the thighs, then replaced by an ankle brace, and this may in turn be eventually laid aside. Entire recovery from an extensive paralysis is however very rare.

What can be accomplished by proper bracing is really remarkable, and one of the most noticeable features in these cases is the change in mental complexion and development when the patient realizes what he is enabled to do. It is not an uncommon experience to enable a man to walk, or at any rate to get about with a cane or crutches, and so become a member of society, who has passed all his life at home in a bed or chair, dragging himself about with his arms perhaps, but never going out of the house unless carried, and whose future seemed as hopeless and promised to be as uneventful as his past.

24 West 50th St., New York City.

BORIC ACID, in the opinion of Dr. H. P. WENZEL, is a most valuable remedy in *non-surgical gynecological diseases*: it can be employed in all cases and under all circumstances; it is easily handled and applied; it is antiseptic, but non-toxic in any quantity; it is astringent, but painless; it favors drainage, but it is not deliquescent; it destroys fetor, but is itself odorless; it is white, and does not stain either tissues or clothing; and it is curative.

THE STABILITY OF INORGANIC COMPOUNDS IN THE SYSTEM.

By Dr. GEO. W. RACHEL,

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Some doubts about the admissibility of Dr. W. H. PORTER's theory in regard to the action of the MERCURIALS AND IODIDES* have arisen in my mind, and I hope I may be allowed to state them in MERCK'S BULLETIN.

Of the four chief deductions which the author draws from his study, the last one only may be assented to unconditionally; viz., that

"Diet, digestion, and assimilation should be as accurately regulated as the dose of the drug, if the best results are to be obtained from our therapeutic agents."—[See page 15 of the present volume.]

The first, second, and third, however, are such as not a few medical men will decline to acknowledge. That the inorganic compounds are not chemically decomposed in the system, but act by their mechanical presence [*ibid.*], is at variance with a good many facts established by physiological research.

That "water passes through the system unchanged, and that its action is chiefly mechanical as compared with chemical phenomena," [p. 3], is in itself a somewhat contradictory statement. For, if *all the water* introduced into the body were to pass through the system unchanged, its mechanical would be its *only* action. The term "chiefly," which the author employs, shows that he himself admits that some of the water does not act mechanically only, but is involved in the evolution of some chemical phenomena.

One of the best illustrations of the fact that the author's statement referring to the inorganic compounds is not unqualifiedly true, is the process by which free hydrochloric acid is secreted by the gastric mucous membrane. Although its percentage in the gastric juice is a small one, rarely more than 0.2 to 0.3 *per mille*†, the total quantity secreted during 24 hours amounts to about 26 grammes, if the

estimates of BIDDER and SCHMIDT be taken as a standard. This free mineral acid is derived from the chlorides of the alkalis and the alkaline earths, so abundant in the gastric juice, principally from sodium chloride probably. It is immaterial whether it be the lactic acid which splits up the latter, or whether carbonic acid be the active agent in this decomposition. Sufficient for our purpose is the demonstration of the incontrovertible fact that sodium chloride is by some chemical agency decomposed, sodic carbonate is formed, and hydrochloric acid results from the combination of the chlorine, derived from the chloride, with hydrogen.

It is thus evident that not only some, at least, of the inorganic compounds, but also some of the water ingested undergo chemical changes during their presence in the system.

Furthermore, a considerable number of proteids and albuminous substances, which are integral parts of various tissues of the body, contain inorganic substances, such as sulphur, phosphorus, iron, etc., in chemical combination with the organogens, i. e., carbon, hydrogen, nitrogen, and oxygen. As they are oxidized by the vital processes and gradually decomposed, the nitrogen leaves the body in the form of urea, while the sulphur and the phosphorus, after passing through various phases of oxidation, unite as acids with the inorganic bases and form sulphates and phosphates. LANDOIS* states this fact plainly thus:

"The inorganic constituents are either taken in the body as such with the food and pass off unchanged in the urine, or they are formed in the body, owing to the sulphur and the phosphorus of the food being oxidized and the products uniting with bases to form salts."

The examples apt to illustrate this are numerous, and a few of them will here suffice. The same author says:

"Phosphoric acid is partly derived from the alkaline and earthy phosphates of the food, and *partly as a decomposition-product of lecithin and nuclein*. As phosphorus is an important constituent of the nervous system, the relative increase of phosphoric acid is due to increased metabolism of nervous substance."

* "Some New Observations on the Physiological Action of the Mercurials and Iodides," etc.—By Prof. WILLIAM HENRY PORTER.—MERCK'S BULLETIN, 1892; p. 3.

† LANDOIS, 3d ed., p. 288. RICHET found it to go up to 0.8 and even 2.1 per mille.

* *L. c.*, p. 454: "The inorganic constituents of the urine."

Further :

"The sulphuric acid is *chiefly* derived from the decomposition of proteids, and hence its amount runs parallel with the amount of urea excreted. *The amount of alkaline sulphates in the food is, as a rule, very small.*"

(The italics in the quotation are mine.)

L. also refers to KRAUSE's experiments, which enabled the latter to show that by the administration of sulphur in substance the amount of sulphuric acid, passing out of the body in the form of sulphates in the urine, is increased.

One of the intermediary stages which obtain during the oxidizing process of the albuminous matters in the appearance of sulphur as a constant ingredient of taurocholic acid, secreted in the bile. As the biliary acids are combined with soda (in traces with potash) some other acid, probably carbonic, must have been displaced to allow the formation of taurocholate of soda; another example of the decomposition of inorganic salts is thus demonstrated. The sulphur, contained in the biliary acids which are re-absorbed with the fats, emulsified by their action, does for the greater part ultimately appear in the urine as sulphuric acid, in the form of sulphates.

Another quotation from LANDOIS is in place here :

"Many substances appear in an oxidized form in the urine—moderate quantities of the alkaline salts as alkaline carbonates (WÖHLER), uric acid in part as allantoin (SALKOWSKI), sulphides and sulphites of soda, in part as sodium sulphate, potassium sulphide as potassium sulphate, some oxyduls as oxides, benzol as phenol (NAUNYN and SCHULTZEN)."

This is conclusive evidence that "the vital action of the body is capable of decomposing saline compounds and transforming alkaline into acid substances within the system,"—a fact which Dr. P. denies. For, he says, [p. 4]:

"We should have as a natural sequence the undesirable results just mentioned; alkalinity giving place to acidity, life to death; this, however, does not occur, and so in itself proves the error of the first theory."

As this argument is the only one which he adduces to prove that all the inorganic com-

pounds pass in and out of the body unchanged—although he modifies this theory by calling it an assumption,—it is proper to go somewhat further into this subject.

The fact that life is sustained principally by the oxidation of the various components of the animal tissues proves that *acid products must be constantly formed*. They are, however, carried away immediately by the blood-stream and *thereby neutralized*, while on the other hand fresh oxygen is being uninterruptedly supplied by the alkaline blood-stream, in so far as it is not present in the tissues. This state of things is best illustrated by the chemical activity of muscular tissue.

When Dr. PORTER read his recent paper on "Proximate Principles" before the Pædiatric Section of the NEW YORK ACADEMY OF MEDICINE, the writer took occasion during the discussion to point to the fact that the chemical processes, those taking place in the muscles more especially, were of a very complicated nature and not as yet fully understood. The most important fact in this connection has been established by PETTENKOFER and VOIT, and is extensively quoted by JOHANNES RANKE. It is this:

During the night's rest a large amount of oxygen is stored up, as it were, in the muscles, and it is this oxygen principally which enables the individual to perform muscular work on the following day.*

The amount of oxygen thus stored up is in proportion to the amount of work performed during the previous day. Thus during a day of rest the oxygen taken up was :

during the day (6 A. M. to 6	
P. M.)	234.6 gms.
during the night (6 P. M. to 6	
A. M.)	474.4 "

While during a work-day it was:

during the day (6 A. M. to 6	
P. M.)	294.8 gms.
during the night (6 P. M. to 6	
A. M.)	659.7 "

*RANKE; "Physiologie des Menschen," p. 635.

In what form this oxygen is stored up is still a matter of conjecture, although we can prove experimentally that some of it, if not the greater part, is carried to the muscles. For, as has been shown by HERMANN, an excised muscle may continue to contract in a vacuum, or in a mixture of gases free from oxygen.* This is only possible because oxidation can continue as long as there is any available oxygen present, stored up in the muscle in some form.

During the activity of the muscle, all the groups of chemical substances present in the muscle undergo a chemical transformation, i. e. oxidation. The principal products of this process are, according to DUBOIS-REYMOND and RANKE, carbonic acid, paralactic acid and dihydric or acid phosphate of potassa, aside from creatine and creatinine derived from the albuminoids. The neutral or feebly alkaline reaction of a passive muscle therefore passes into an acid reaction during the activity of the muscle; the degree of acidity increases up to a certain extent, according to the amount of work performed by the muscle. The acidification is due, according to WEYL and ZEITLER, to the phosphoric acid produced by the decomposition of lecithin.†

If the formation of these acid products takes place so rapidly that they cannot be completely carried away and neutralized by the alkaline blood- and lymph-streams, they accumulate in the muscle and inhibit the further action of the muscle; fatigue now sets in. Not until most of these *fatigue-stuffs* ("Ermüdungs-Stoffe"), as Ranke denominates them, have been for the greater part removed, can oxidation and muscular activity again set in. Their action, therefore, is that of a safety-valve, as it were, which prevents their production to such an extent as would be detrimental to the vital energies of the system.

Thus we see that it is not an unfounded assumption, as the above quotation from Dr. PORTER would seem to imply, that saline compounds may be decomposed by the vital

action of the body and that alkaline substances are transformed into acid ones while within the system. It takes place constantly, without causing death, as Dr. P. says it necessarily would.

As to the various processes taking place in connection with the secretion of the urine in the kidneys, I shall not dwell upon this particular subject. Suffice it to say that there is as yet no definite and complete theory in regard to the part which is played by the glomeruli on the one hand and the tubules on the other. LUDWIG'S hypothesis is the most plausible one* so far, but it leaves various phenomena unexplained.

A few words more about the action of the Mercurials and the Iodides.

In treating of this subject, we cannot very well follow Dr. PORTER'S line of argument, as it is based on the assumption [p. 10] that "the inorganic compounds are *not chemically decomposed and transformed* within the system into new compounds, but act, if at all, by their mechanical presence."

As this assumption has been shown, I believe, to be untenable, there must be a reasonable doubt also as to this mode of action of the mercurials and iodides. This doubt is strengthened by a number of facts which may be briefly stated.

The curative action of mercury in the form of inunctions and fumigations is one of these. Here no compounds of mercury are introduced, and whether the mercury enters the system as an oxide or an albuminate or in combination with fatty acids derived from the secretion of sebaceous follicles of the skin, the compounds thus formed are certainly such as to be as easily decomposed, as they are formed.

The same holds true for the application of Iodine in the form of ointment or tincture. The influence it has, on glandular tissues more especially, is not exerted by irritation as a foreign body, as Dr. PORTER defines it; there is probably an albuminate of Iodine formed,

* LANDOIS, l. c., p. No. 514.

† LANDOIS, l. c., p. 513 and 514.

* RANKE, l. c., p. 507.

similarly to the case of the mercury, which latter is also most likely to take the form of an albuminate while sojourning in the body. This view is strengthened by the fact that mercury remains in the tissues for weeks and months, as has been proved by the investigations of RANKE,* who proved this in a case where sublimate inunctions had been made several months before his investigations. Mercury was found to be present in the liver, the glands of the abdomen, the kidneys, the brain, the spinal cord, and in some peripheral nerves (the brachial); also in the spleen, the heart, and many of the muscles of the trunk. That this mercury was not present in its original combination with iodine or chlorine, is self-evident. Corrosive sublimate is diffusible and soluble enough to be eliminated in a few days, if not hours.

What the action of the mercurials and iodides on the syphilitic poison really is, and in what manner its curative influence on the neoplastic tissue is exerted, nobody has as yet been able to demonstrate. In this, the best authorities fully coincide; but they also cherish the belief, which Dr. P. strongly assails, that many cases of this dread disease have been ultimately and definitely cured by the repeated and thorough administration of the drugs in question.

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PREVALENCE OF CONSUMPTION IN THE UNITED STATES.†

By JOHN S. BILLINGS, M.D., Surgeon, U.S.A.

In attempting to comply with the request for a few words on the subject of the contagiousness of pulmonary phthisis and the advice to be given to the general public with regard to it, I will first attempt to estimate the prevalence of this disease in the United States.

In the census of 1890, the number of deaths reported as due to consumption in the United States during the census year was 101,645, giving a death rate from this cause of a little

over 1.6 per 1,000 of living population. The corresponding death rate for the census year ending June 1, 1880, was a little over 1.8 per 1,000. In each case the figures are probably too low by at least 20 per cent. If we take the states in which the registration of deaths is most complete and accurate, we have the following death rates per 1,000 from consumption for the census year ending June 1, 1890, viz.: Connecticut, 2.34; District of Columbia, 3.59; Massachusetts, 2.67; New Jersey, 2.34; New York, 2.48; Rhode Island, 2.66. From these data it is quite safe to assume that the number of deaths due to pulmonary phthisis in the whole country during the census year was over 125,000.

In the large cities the death rate from this cause was greater. Taking the six years ending May 31, 1890, the average annual death rate from consumption in New York City was 3.92; in Brooklyn, 2.98; in Boston, 3.86; in Philadelphia, 2.98. During the census year this death rate was, in New York State, excluding New York City and Brooklyn, 1.81; in Massachusetts, excluding Boston, 2.40. The influence of aggregation in increasing the mortality from this disease is well marked and can be shown in many ways. As to the number of cases of pulmonary phthisis actually existing at one time in a given locality, we can only estimate it from the number of deaths. If we estimate the average duration of the disease as two years, we shall have two cases in existence to every death. On this basis there are now 11,000 cases in New York City, 4,000 cases in Brooklyn, and 13,000 cases in the rest of the state.

In the older and more definite meaning of the word, pulmonary phthisis is not so much a contagious as an infectious disease. The bacilli and spores which are its specific cause can very rarely pass directly from one person to another, for they are not contained in the expired air unless it contains spray due to cough. The chief means of conveyance is through dried sputa, and the localities where these are present are infected localities.

* *L. C.*, p. 294.

† Read before the NEW YORK ACADEMY OF MEDICINE,—Stated Meeting, January 18, 1892.

Of such infected localities, among the most dangerous to those visiting them are those frequented by the criminal and vicious classes of the community. These people are much more affected with phthisis than others, owing partly to lack of cleanliness in their habitations, clothing, and persons, and partly to their greater susceptibility, or, as it may be otherwise put, to the fact that their tissues and fluids are often less capable of resisting and impeding the growth of the specific bacillus than are those of the average citizen.

A specially infected and dangerous locality is a criminal court room. Into this are brought every day persons affected with this disease, and depositing infectious sputa on the floors, where they soon dry and are ground into dust which pervades the air. These places, being never effectually cleaned, from the bacteriologic point of view, become centres of infection, causing disease not only in prisoners, but in spectators and lawyers.

Moreover, these places are among those where preventive measures can be authoritatively enforced. Much may be done, no doubt, by the medical profession, to educate all citizens and householders as to the necessity for, and methods of, prompt disinfection of the moist sputa of persons affected with consumption, but it is only in places under state or municipal control, such as court rooms, hospitals, asylums, and prisons, that proper rules for such disinfection can be intelligently and continuously enforced. In court rooms the essential thing is the prevention of infectious dust. They should not be swept when dry; the dirt should be removed by wet rags, which should be boiled before they are allowed to become dry, and the floor should be sprayed in the morning daily with a disinfectant fluid, such as a strong solution of carbolic acid, to which it is well to add a little crude glycerin.

The danger of infectious dust from the foul clothing of the prisoners will still remain, but precautions against this which would be effectual, are not likely to be taken in the present

state of public opinion, and it does not, therefore, seem expedient to insist on them at present.

Washington, D. C.

ANTIDOTAL TREATMENTS.

By WILLIAM HENRY PORTER, M.D.

The object of this paper is to give a few brief HINTS ON GROUPS of Poisons as far as is practicable, to serve as a *general guide* in the treatment of poisoning from the various classes of toxic substances. The latter being grouped in this way, the chief points of interest can be made to stand out in prominent contrast the one from the other. *Special* antidotes, when known, will be mentioned with the respective individual poisons.

IN POISONING BY ACIDS.

In the first place, administer *water*, to dilute the acid (except in poisoning by Sulphuric Acid, in which the heat produced by the union of the acid and the water aggravates rather than lessens the irritation). This should be followed by the administration of *alkaline solutions*, such as calcined magnesia, sodium carbonate or the bicarbonate of sodium, or soap-water. Then *follow* with white of eggs, milk,—all of which are usually at hand, mucilaginous or demulcent drinks as soon as they can be procured and as an after-treatment when the acute symptoms have been subdued.

ANODYNES must be given in some form for the relief of the pain. Morphine administered hypodermatically is unquestionably the most certain remedy known for the relief of pain in the more intense cases.

In some instances the following will be found to answer every purpose as an analgesic, and prevent the necessity of giving opium or its alkaloids in any form.

Muriate of Cocaine.....	gr. x.
Phenacetin.....	gr. xxx.
Exalgine.....	gr. x.
Acid Salicylic.....	gr. xx.
Divide into 10 capsules!—One every 2 or 3 hours.	

If the patient has swallowed a considerable quantity of the acid, and the mucous membrane of the mouth, pharynx, and esophagus

are considerably eroded, it may be necessary to nourish the patient for a number of days by the aid of nutritive enemata.

The best substances to use as enemata are *peptonized* milk, eggs, and beef.

IN POISONING BY ALKALIS.

Administer, first of all, *water acidulated* with acetic acid or vinegar, or with lemon-juice, tartaric, citric or malic acid. In the absence of the vegetable acids, dilute mineral acids can be substituted; but the former are more often at hand in ordinary cases of emergency. *Follow* the acidulated drinks with oil, milk, the white of eggs, and demulcent draughts of all kinds,—of which a flax-seed tea is perhaps the best.

ANODYNES should be given as the urgency of the symptoms demand.

If required, feeding by the rectum should be instituted.

IN POISONING BY ALKALOIDS, OR ALKALOIDAL DRUGS GENERALLY, WHEN INGESTED.

The stomach should be *emptied* at once, or immediately after the administration of one of the *chemical antidotes*, of which tannic acid in some soluble form is the best. The iodide of potassium or even animal charcoal may be substituted as a chemical antidote when the tannic acid is not at hand.

Tannic acid, when it comes in contact with the alkaloid contained in the stomach, unites with the poison, forming a partially insoluble tannate of whatever alkaloid has been swallowed. For the reason that such newly formed chemical compound is only *partially* insoluble, it needs to be removed from the gastric cavity as soon as practicable.

The best EMETICS are luke-warm water and mustard combined; the sulphate of zinc or the sulphate of copper. The blue vitriol is a trifle more certain, but as it is more irritating than the white vitriol, the sulphate of zinc is more commonly recommended.

In cases where an emetic cannot be taken, the *hypodermatic* administration of apomorphine in doses ranging from one-tenth to one-fifth of a

grain, will produce free vomiting. Owing, however, to the highly depressing action of this compound upon the nervous system, it is not in general use. (In *alcoholic* poisoning apomorphine usually produces its effects without intense depression, and in these cases can often be administered to advantage.)

CAUTION AS TO EMETICS IN NARCOTIC INTOXICATIONS.

In connection with the use of emetics in general,—when there is a *tendency to coma*, a word of warning may not be out of place; to wit,—that in all cases of profound poisoning in which there is a comatose condition, emetics of all kinds should be avoided altogether or used with the greatest of caution; because during the act of vomiting, while the reflex actions are benumbed, foreign particles are very apt to be drawn through the larynx and on into the deeper air passages. While the patient may possibly recover from the primary effects of the substance taken, it will be simply to die from the effects of the so-called “foreign-body pneumonia.” This pulmonary lesion and death often follow in rapid succession upon the recovery from the poisoning.

SUBSTITUTES FOR EMESIS.

The danger above indicated is particularly marked and liable to occur in poisoning by opium and its alkaloids.

On account of the profound disturbance produced by the opium between the normal co-rhythmic actions of the heart and lungs, there supervenes a marked engorgement of the capillary blood vessels constituting the pulmonary circuit. This intense determination of blood in the pulmonary vessels is equivalent to the first stage of an inflammatory process. The slightest irritation added to this engorgement of the lungs is quite sufficient to excite a fully developed inflammatory action, and a well-defined foreign body, pneumonia or a broncho-pneumonic inflammation is speedily developed. Such an inflammation, following the strain of the opium-poison upon the system, almost invariably causes death even

when the danger from the effects of the drug has been safely passed.

If in narcotic poisoning, for any reason it becomes absolutely necessary to *empty* the stomach, it should be effected by the aid of the stomach-pump or the siphon.

Siphoning the stomach is best accomplished in the following manner:—The three things required are, an esophageal tube, from six to eight feet of rubber tubing, and a large glass funnel holding about six pints. It is also a good plan to have the rubber tube interrupted at one point by a piece of heavy glass tubing. The three are attached together, and the esophageal tube, having been greased with butter, is introduced into the stomach. The glass funnel is then filled with water having a temperature of about 98° F. The funnel is then gradually elevated to a point somewhat higher than the stomach,—the degree of elevation depending entirely upon the amount of pressure required when the stomach has become fully distended, the funnel still full of fluid is depressed to a point considerably lower than that occupied by the stomach. Then, by suddenly inverting the funnel and its contents, a strong suction force is established and the contents of the stomach are rapidly withdrawn. If the tube becomes occluded by any solid substance or even by the mucus contained in the gastric cavity,—a refilling of the funnel and again elevating it to a point considerably above the stomach, then lowering the same without inverting the funnel, and repeating the motion several times will remove the occluding body, and the outward current can be fully re-established. In this way the stomach can be as thoroughly cleansed as by the use of a stomach pump.

The somewhat recently devised mechanical apparatus known as the ALLYN'S Surgical Pump can also be used for the same purpose if a hand.

Pumps, however, have very little if any advantage over the well-applied siphon, and by their greater suction-force they may even catch

up the mucous membrane of the stomach and thus cause damage.

[TO BE CONTINUED.]

PANCREATIN has been reported to markedly arrest the progress of emaciating *diabetes*.

GELSEMIUM TINCTURE, in large doses, is reported to have cured 2 cases of *traumatic tetanus*.

ANTIPYRINE is reported as increasing the aqueous solubility of Quinine salts and of Caffeine.

SANTONIN has been recommended in *enuresis* caused by irritation of the vesical sphincter, in doses of $\frac{1}{4}$ – $\frac{1}{2}$ grain, saturated with sugar.

GELSEMIUM is reported to be a good sedative in all fevers with *irritability of the nerve-centers*, unnaturally bright eyes, flushed face, and contracted pupils.

MENTHOL 1 part, alcohol 20 parts, and syrup 30 parts,—a teaspoonful every hour,—has been lauded in *nausea* and *vomiting*, even in the obstinate vomiting of pregnancy.

POTASSIUM BI-CHROMATE is reported to promptly relieve *hoarseness* caused by a thickening of the mucous membrane. Enough of the medicament is added to 4 ounces of water to slightly color it, and a teaspoonful of the solution given every hour.

IRON IODIDE in pill form, either alone or in combination with Zinc Phosphide, is extolled by Dr. LAVRAND as an efficient remedy to prevent or arrest *lead-poisoning* in those who work in the white-lead manufacture. The author has found that, although his patients continued to work in positions where they were likely to suffer, they improved in general health. The peculiar earthy complexion and anemia characteristic of saturnism disappeared under their use, and the amount of hemoglobin in the blood increased.

RATIONAL DIETETICS:

STUDIES FOR "MERCK'S BULLETIN."

FOOD VALUES.

II.

NON-LEGUMINOUS FOOD-PLANTS.

In last month's article upon food-values and the energy-tax imposed upon the system, the energy-yielding value of MOLESCHOTT's mixed, PORTER's pure meat, and the exclusive vegetable diet, composed of beans alone, was computed.

It is the purpose in this article to take up, in a similar manner, two or three more of the substances commonly rated as food-stuffs, and given in Table I, p. 96 (last number).

It is also the ultimate aim in these papers to consider each kind of food-stuff universally used for the maintenance of animal life, and by an application of a uniform series of chemical and physiological phenomena to clearly set before the profession the present and advanced knowledge in possession of the medical science regarding the utility of these compounds to the system.

THE GREEN-VEGETABLE DIET.

Having already considered a general mixed, a purely meat, and a purely vegetable diet,—the latter in the form of a strongly nitrogenous body like beans,—it will be well to investigate next, another extreme in the food-stuffs; as, for instance, the green vegetable class, all of which are found to contain a small percentage of proteid matter, also a small percentage of starch and sugar and of fat, but all of which have a comparatively high percentage of mineral compounds and a large volume of water.

BULKINESS OF THIS DIET.

To obtain the requisite quantity of proteid matter to carry on the construction work of the body from the green vegetables alone, it becomes necessary to ingest a very large bulk of this kind of food-stuffs. By taking 5598 grammes (180 ounces) or $11\frac{1}{4}$ pounds of green vegetables into the system in twenty-four hours, there is furnished to the physiological

economy the required 130 grammes (4.19 ounces) of proteid matter, which is taken as the common standard in all these computations. With this there is also furnished to the system 90 grammes (3.11 ounces) of vegetable fat and 188 grammes (6.05 ounces) of the starchy and saccharine compounds.

INACCURACY OF THE GLUCOSE RATING.

At this point it may be well to state that all the starchy and saccharine compounds are rated as one under the common formula for glucose ($C_6H_{12}O_6$). The reason for doing this is that all these substances must first be converted into a glucose or alcoholic compound before they are capable of being absorbed into the general circulation. As these computations are intended to show what follows from the oxidation of these elements within the system, it becomes necessary to limit the calculations to those substances that are known to be capable of passing into the circulation.

By following this method of computation, however, an undue advantage is given to all vegetable compounds, because it at once assumes that all the starch and saccharine compounds are primarily in a position to be absorbed.

This, as all must know, is not true, but the starch must first be converted into glucose, and many of the saccharine compounds have to be converted back into an absorbable form of glucose before they can be made available by the system.

This transformation, when effected by Nature's own inherent efforts, calls for the production of ferment bodies, the expenditure of energy, oxygen, etc., which in itself is a drain upon the intrinsic energy of the system; but for the time being and to determine the highest possibilities of all the different food-stuffs, the full percentage composition as given in Table I, p. 96, is considered as having entered the general circulation.

The exceptions in reference to ease of digestibility and percentage absorbed will be more fully considered at another time.

THE HIGHER ABSORBABILITY OF THE PROTEIDS.

A similar remark is justly applicable to the proteids; for in all the compounds the full percentage, as given in the crude substance, is assumed to enter the circulation.

While in all the elements used as food the full composition is not taken up by the system, but it comes more nearly to being true in the case of the animal proteids than with the vegetable proteids or the carbo-hydrates; for it has been found by actual experiment that fully ninety-six per cent of the animal proteids ingested as food are absorbed; while in many instances not more than sixty per cent of the vegetable proteid is absorbed, the average being from seventy to eighty per cent, and mostly a much smaller percentage still of the carbo-hydrates is capable of being taken up into the circulation.

Nevertheless, even in the face of these facts, for an illustrative study of the higher possibilities of oxidation it is assumed for the present that the full percentage given in Table I enters the blood and lymphatic channels; and at the proper time attention will be called to this now apparent discrepancy in the amount digested and absorbed. It will also be explained in such a manner that it will be clearly apparent how the system can become enabled to receive the total quantities assumed in these computations.

NUTRIMENT-YIELD OF THE GREENS.

As 130 grammes (4.19 ounces) of proteid matter are necessary to perfectly maintain the constructive forces of the body, and as it has been found that the $11\frac{1}{4}$ pounds of green vegetables contain this quantity, the system can be perfectly nourished, so far as the proteid elements of the food are concerned, by taking these 180 ounces of green vegetables daily.

Applying, again, the same methods of computation to all the proximate principles con-

tained in these 5,598 grammes (180 ounces) of green vegetables, as was done in computing the working value of the MOLESCHOTT'S, PORTER'S meat, and the pure bean diets, the following results are obtained:—To completely oxidize the green vegetables and convert their contained proximate principles into their final products of excretion, it is found necessary to expend only 21,237 oxygen units. The chemical results are the production of the same amount of urea, uric acid, and creatinine as was obtained when using the MOLESCHOTT'S and PORTER'S diets. But carbon di-oxide and water are both produced in much smaller quantities.

ENERGY-YIELD OF THE GREENS.

The total mechanical result developed out of this green-vegetable diet is only 314,421 kilogramme-metres (2,274,207 foot-pounds) of energy or working power. This, as compared with the meat diet, which yielded 734,890 kilogramme-metres (5,314,359 foot-pounds) of energy, shows a large deficiency in working power produced, amounting to the grand total of 420,469 kilogramme-metres (3,040,152 foot-pounds) less being developed than when upon the simple animal proteid and fat diet.

The interesting point in this computation is the establishment of the fact that the human economy can obtain the full proteid supply necessary to effectually maintain the nutritive and reconstructive functions of the body out of the green-vegetable class of food-stuffs even when taken alone. It, however, necessitates the taking of large quantities in bulk, and the ultimate yield of energy is exceedingly low. So that green vegetables alone could never be made available for the most serviceable form of nutrition.

By doubling the quantity taken into the system daily, very nearly the same amount of heat and energy could be produced as can be obtained from meat alone. In other words, if a man could eat from 25 to 30 pounds of green vegetables per day he would receive more than the full complement of proteid matter, and the yield of heat and energy would be nearly up

to the maximum standard. But now, as with the bean diet, an excessive amount of oxygen would be required, and double the normal amount of nitrogenous excretory products would have to be formed and eliminated by the excretory organs.

OVER-TAXATION OF THE ORGANS BY THE GREENS DIET.

The stomach and alimentary canal would be constantly over-distended, the respiratory organs compelled to furnish a complement of oxygen greater than their natural capacity would permit, and with the constant overstrain of the secretory and excretory organs only one thing could follow: a disturbance of the functions in general, and, finally, the development of absolute pathological conditions.

Comparing the arrangement of the human alimentary canal with that of the herbivorous animals,—it becomes at once apparent that Nature never intended the human economy to be fed upon a purely green-vegetable diet.

Considering this from all standpoints with the view of securing the greatest advantage possible in favor of the vegetable class, we still find it impossible to secure the highest standard of proteid nutrition, the largest amount of heat and energy, and yet expend the smallest possible outlay of oxygen, energy and glandular work in obtaining these results from the use of this class of food-stuffs.

ILLS CONSEQUENT ON THE ABUSE OF GREENS.

While it must be admitted that man can live, or rather exist, upon this class of food compounds, it must also be remembered that they cannot be used to advantage.

The free indulgence in this class of food-stuffs appears, when carefully investigated, to be one of the chief factors in the production of the common digestive difficulties and the so-called uric acid diatheses, oxaluria, rheumatism, diabetes, Bright's, etc., etc.

A free use of these compounds is often the very element that prevents a restoration of the physiological economy to a standard of perfect health and action, simply because their percentage composition is of such a nature that

the required amount of proteid matter cannot be supplied to the system and at the same time the full amount of heat and energy be produced.

THE CEREAL DIET, ILLUSTRATED BY RICE.

Taking next another form of vegetable compound, such for instance as rice, and applying the same laws and making the same kind of calculations,—the following results are obtained: To secure the required 130 grammes of proteid material, necessitates the ingestion of 58 ounces, or 3 pounds and 10 ounces, of rice during the twenty-four hours. This 1,803.9 grammes of rice will yield the 130 grammes (4.19 ounces) of proteid matter, also 1,329 grammes (47.73 ounces) of starch, figured finally as glucose, 14 grammes (0.47 ounce) of vegetable fat. This amount of rice yields also about 15.5 grammes (0.5 ounce) of saline compounds, and a very small percentage of water.

Applying, now, the same computation to the proximate constituents of the 1,830.9 grammes of rice, as has been done in the previous instances,—it is found necessary to use 36,208 oxygen units to completely transform the proximate principles constituting the rice into their complete and ultimate excretory products.

NUTRITIVE AND DYNAMIC VALUES OF THE RICE DIET.

The chemical result is the same amount of urea, uric acid, and creatinine as obtained in all the previous examples. There is, however, a slightly larger amount of carbon di-oxide and water produced upon a rice diet than upon an animal diet of pure proteid and fat.

The mechanical results obtained from the oxidation of the 1,830.9 grammes of rice is the development of 680,159 kilogrammetres (4,919,590 foot-pounds) of heat and energy.

Comparing these results with those obtained when upon the purely meat diet, we find that in oxidizing this amount of rice nearly as much oxygen is required as is necessary to transform the meat diet. The same amount

of nitrogenous excretory matter is produced in both instances. But more carbon-di-oxide and water are developed and eliminated when upon the pure rice diet. The yield of energy from rice is 54,731 kilogramme-metres (394,769 foot-pounds) less than is secured when living upon the animal proteid and fat alone.

This comparison clearly proves that humanity can live, and probably do thrive, fairly well upon rice alone. At the same time an exclusive diet of rice only would tend to produce a race of low energy.

ENERGY-TAX IMPOSED BY CARBO-HYDRATE CONVERSION.

All these deductions have assumed that perfect and complete digestion of the full amount ingested has occurred.

The facts of the case are, however, a little different. The conversion of starch into a diffusible glucose requires on the part of the system the production of the ferment bodies and the expenditure of considerable vital force to transform the starch into soluble glucose. The same also applies to the saccharine elements. All this necessitates an outlay of energy and oxygen on the part of the physiological economy, while the molecular yield of energy from starch or sugar is absolutely small, molecule for molecule. Therefore the system is losing a large percentage of the produced energy *in preparing the food-stuffs so that they can be absorbed* and made available for use within the circulation.

ANIMAL AS AGAINST VEGETABLE FAT.

When on the meat-and-fat diet, all this ferment-producing and digestive work in converting starch into available compounds is obviated. The animal fat is not digested and converted into other compounds, but is simply emulsified and drawn directly into the lymphatic channels chemically unchanged. Once within the circulatory channels, it rapidly undergoes isomeric or chemical changes, or both, and uses a large amount of oxygen in its conversion into carbon di-oxide and water, but in its oxidation there is produced a large amount of heat and energy, all of which is

developed and expended within the vascular system.

The vegetable fats are not so commonly emulsified and absorbed, but are more generally attacked by the steapsine and split up into their component parts: a fatty acid and a glucose. The former then unites with the soda compounds in the alimentary canal, forming a hard soap, and liberating carbon di-oxide. Soap and glycerin are not absorbable compounds, and act as natural lubricants and laxative agents in the alimentary canal. So the vegetable fat is practically lost as an active intrinsic element within the system, but it is very useful as a laxative agent, which in itself makes vegetable-food laxative in its action.

ANIMAL VERSUS VEGETABLE PROTEID.

In regard to the 130 grammes of proteid matter which is contained in the animal or in the vegetable substance used as a food-stuff, theoretically there should be no difference regarding the amount of ferment required and oxygen used. While this has been assumed as the case in all these computations, it is not absolutely true. For the chemist tells us that vegetable proteid is of a higher nitrogenous composition than animal proteid. Therefore it is more difficult to digest, and requires more oxygen to completely transform the vegetable albumin.

A LOWER TONE THE RESULT OF CEREAL FEEDING.

Thus we find that animal proteid requires less oxygen to render it serviceable, and that, bulk for bulk, it returns a larger quantity of energy. The starches, as compared with fat, require considerable digestive work to render them fit for use within the system, while animal fat is much more easily made available for the production of heat and energy.

The vegetable fat, while small in quantity, is partially lost to a heat and energy production, but does aid in overcoming constipation.

Thus we find that while rice easily supplies the requisite quantity of proteid matter, it is absolutely unable, when practically applied as food, to both sustain nutrition and develop

the same amount of energy for the same outlay of oxygen, that can be obtained by the pure meat diet.

The Chinese race is, perhaps, a good illus-

tration of this fact. While they are enabled to live largely on this diet of rice, they cannot be called a race of high physical or mental development or great producers of energy.

CLINICAL PAPERS

ON LIVE TOPICS.

GRIPPAL NEPHRITIS AND ITS TREATMENT.

BY DR. L. TUVACHE.

[Abstract of Inaugural Dissertation, Paris.]

Among the various complications of grippe, nephritis is the one least thought of by the practitioner, although clinical observations, made both in this country and abroad, permit of no doubt in regard to its existence. It happens, also, that this nephritis (which sometimes develops even during the course of the influenza, most frequently, however, during the period of convalescence) is not recognized in time, to the great detriment of the patient. This is the way in which grippal nephritis develops in the majority of cases: The convalescence from the influenza, always long, seems to be prolonged indefinitely; the patient, instead of improving, feels worn and feeble; he drags. Then more defined morbid symptoms make their appearance, compelling the patient to consult a physician.

These symptoms are sometimes so conclusive that the diagnosis of nephritis offers itself—when, for instance, a patient presents himself with generalized edema and the characteristic countenance and urinary troubles.

But often the symptoms, instead of attracting attention to the kidneys, lead one to think rather of an affection of the respiratory passages; this the more, the more the notion of the frequency of pulmonary complications of grippe directs the physician in this regard. Thus it is that some patients affected with grippal nephritis and complaining of a cough and of having a feeling of oppression in the chest, are often considered and treated as bronchitics and asthmatics,—a mistake which has sad consequences for the patients.

In other patients the prevailing symptom is a *lumbar pain*, which is sometimes taken for a simple lumbago.

The physician who has in mind the possibility of *renal* complications of the grippe can in all these cases easily trace the true nature of the disease, by looking for and tracing the characteristic symptoms,—to wit: buzzing in the ears, frontal headache, puffiness of the eyelids, special fullness and dull pallor of the face, malleolar edema, stiffness of the fingers, lumbar pains, diminution in the quantity of urine excreted, albuminuria, hematuria, epistaxis, threatened suffocation, etc. However, it must not be expected to find *all* these symptoms in every case of grippal nephritis; some—the edemas, for instance—may be wanting. The most constant signs are headache, lumbar pains, access of oppression, and albuminuria.

The prognosis of grippal nephritis, while being in general quite unfavorable, varies nevertheless according to the form and seat of the affection. An acute nephritis abrupt and severe in its evolution leads to death in two or three months, whereas a nephritis insidious and mild in its development may end in a cure. A nephritis attacking a diseased kidney affords a much less favorable prognosis than one developing in an organ previously sound. Finally, it must not be forgotten that grippal nephritis, even when it ends in cure, makes the kidney a *locus minoris resistentiæ* as regards future affections and infections.

The *treatment* of grippal nephritis which I recommend is that which I have seen employed in the service of Prof. DIEULAFOY, of Paris. It may be briefly summarized as follows:

Exclusive milk-diet,—1-3 litres [about 1-3 quarts] daily; and milk-sugar draughts,—

1-1½ litres of a drink containing 40-50 grammes [1¼-1½ oz.] of milk-sugar to the litre, and flavored with lemon, if necessary.

Sugar-of-milk possesses great diuretic power, which adjusts itself to the excess of blood-pressure produced by the large quantity of liquid ingested. If vomiting occur, the milk-sugar may be administered by way of the rectum,—daily 4 enemas of 150-200 grammes [5-7 fl. oz.] of water, each containing 15 grammes ½ oz.] of milk-sugar. In case of need, the enemas and the draughts may be prescribed simultaneously.

It is urgent to arrest the vomiting, which interferes with the alimentation of the patient and his treatment at the same time. I prescribe the following mixture:

Cocaine Hydrochlorate.....gr. i [0.06 gm.]

Morphine Hydrochlorate.....gr. ss [0.03 “]

Lime Water.....℥ XII [360 “]

Tablespoonful before each ingestion of milk.

The uremic dyspnea may be efficaciously combated by blood-letting—200-400 grammes [7-14 fl. oz.] of blood being drawn at a time.

Against the pulmonary symptoms, dry cupping or scarifications are of advantage; but the use of fly-blisters should be strongly discounted,—the absorption of cantharidin being injurious to the affected kidney.

BEECH-TAR CREASOTE has been lauded as a specific in *gonorrhea*,—destroying the gonococci in two hours. It is used in one-per-cent solution in a decoction of hamamelis, with a slight addition of boric acid.

AMYL NITRITE inhalations,—followed by inhalations of chloroform and hypodermic injection of tincture of veratrum viride (½ minim for each year up to six),—have been recommended by Dr. T. G. DAVIS in *infantile convulsions* when the patient is cyanotic.

CAMPBOR 1 part, chloroform 2 parts, applied with the tip of the finger hourly for a day, is reported to be capable of *aborting boils*—if used before suppuration has begun.

CARCINOMA—TREATMENT WITH PYOK-TANIN.

BY DR. VICTOR BACHMAIER, Vienna.

In the beginning of last year, Prof. VON MOSETIG published his new PYOKTANIN-TREATMENT of inoperable malignant neoplasms,—previously described in this journal. That publication has placed a procedure in the hands of the physician enabling him to be of service even to patients with inoperable neoplasms,—by alleviating their sufferings.

A case of inoperable uterine carcinoma came under my care in the early part of last year. In what manner the PYOKTANIN treatment influenced the severe disease, can be seen from the following:

January 24, 1891, I was called to Mrs. R. F.—I found a very sick-looking woman with a waxy countenance lying in bed. She complained of having bled from the vagina uninterruptedly for more than three months; of late, blood-coagula as large as a child's head had been passed from the vagina with pain. The patient was consequently so anemic that she fainted even when she merely sat up in bed; there was a constant noise in her ears; her heart showed the signs of anemia very distinctly; continual headache, dyspnea, slight edema of the lower extremities, no appetite, annoying sleeplessness;—consequently, patient continually confined to bed.

Examination revealed inoperable *Carcinoma uteri*. The uterus was absolutely immovable, both parametria infiltrated as hard as a board, the vaginal portion transformed into a markedly cloven and bloody, ichorous ulcer; the anterior vaginal wall also had already undergone carcinomatous degeneration for a distance of at least 4 centimetres [1½ inches], forming a broad ulceration,—as described above.

At this time Prof. VON MOSETIG-MOORHOF published his new PYOKTANIN-TREATMENT. In a consultation with this authority the case was declared to be inoperable, whereupon I energetically instituted the PYOKTANIN-TREATMENT. I proceeded as follows:

Every second day a 1 : 300 aqueous solution of PYOKTANIN was injected, after previous vaginal irrigation with a strong solution of Creolin-Pearson. At first I injected only $1\frac{1}{2}$ syringefuls [24 minims], dividedly, at two or three points of the portio,—using a long needle and plunging it into the tumor for a distance of 1–2 centimetres [$\frac{2}{5}$ – $\frac{4}{5}$ inches]. In the beginning the punctures bled considerably; the bleeding was promptly arrested, however, by the tampons which were subsequently introduced. The hemorrhages rapidly diminished in extent subsequently; pains were never complained of. After the injection a cotton wad saturated with the PYOKTANIN solution was introduced, followed by two or three large dry tampons (consisting, at first, of iodoform gauze; later-on, of plain cotton; and, in case of considerable hemorrhage, of “adhesive” iodoform gauze,—all being provided with a strong string). The next day the tampons were withdrawn, the parts irrigated with a strong creolin solution, the vagina dried with pledgets through the speculum, a wad impregnated with the PYOKTANIN solution introduced, and tampons inserted, *without* any injection.

Febrile symptoms never followed: nor did the patient in any manner whatever react unfavorably to the treatment. She received, besides, iron albuminate solution—later-on, arsenic; sulphonal for sleeplessness; vigorous diet, with Malaga wine, champagne, etc.—In a short time the hemorrhages became trifling and rare, and the ichorous admixture with the discharge disappeared; the patient could sleep without taking a hypnotic, and all the symptoms of extreme anemia had improved. The appetite had increased considerably, and the ulcer on the portio had become flatter, and bled but little. At the menstrual period there was twice extremely violent hemorrhage from the uterine cavity of several days' duration, strongly affecting the patient, who, however, rapidly recovered again after the cessation of the bleeding and continued to show progressive improvement in appearance and general condition.

Gradually I increased the dose to 3 syringefuls [48 minims] at one session, injected at different points, and with the best success. I also carefully injected the same solution into the diseased parts of the anterior wall of the vagina—later-on even into the adjacent sound parts of the vaginal wall, in order to possibly guard it against the spread of the disease. The injections were borne well also in the sound tissues, and the total result was an excellent one.

—Condition of the patient in the early part of April: The vital forces have perceptibly increased; the deeply-cleft ichorous ulcer on the portio vaginalis and the anterior vaginal wall has been transformed into a flat clean wound; bleeding seldom and slight,—the menstrual flow even having become scanty under continued use of fluid extract hydrastis canadensis in 15-drop doses 3 times daily; no offensive odor in the patient's room; discharge scanty and muco-purulent; the ulcer is beginning to heal on the anterior vaginal wall. After faithfully carrying-out the treatment daily for $2\frac{1}{2}$ months, I visited the patient only on every third day, and subsequently only twice a week.

—Condition on May 31, 1891,—that is, after four months' treatment:

Patient is up, can walk about the room freely, is considerably stronger, and looks much better; no palpitation of the heart, no buzzing in the ears any more; she sleeps well, is again of good cheer, and is able to stay up from early in the morning until 9 o'clock at night; she can descend one flight of stairs to the garden and return without exertion; discharge from the vagina only scanty and occasionally light-yellowish. Internal examination shows that the surface of the ulcer is perfectly flat and smooth, uterus somewhat movable infiltration of the parametria considerably less—the right ovary can be felt, the left one not. Menstrual flow slight and painless. The finger is not bloody after the examination. Bowels as formerly, rectum—as far as can be felt internally—healthy, and no symptoms indicative of its being diseased. With the aid of a

speculum, the flat surface of the ulcer and the healthy red granulations covered with thick mucus intermingled with a little pus can be seen. The part of the ulcer on the anterior vaginal wall reduced by about $1\frac{1}{2}$ centimetres [$\frac{3}{8}$ inch],—just as much as is already healed. Never any pain.

The patient went to a summer resort after a few days, for the purpose of diligently taking walks there and recuperating some more. The treatment was continued by the physician of that place.

As I learned at the date of this report, the patient did very well at the summer resort: improvement steadily progressed, she could take walks without fatigue; there had been no mentionable hemorrhages.

—In conclusion, let us briefly point out what has really been accomplished in this truly desperate case. In the first place, a distinct stasis of the morbid process has been effected; the profuse hemorrhages, the offensive discharge, the hard infiltration of the parametria, and the remaining great disturbances have in part been entirely done away-with, in part become trifling; and the ichorous, cleft ulcer lost these properties in a short time. An important result of the treatment is that the ulcer has begun to heal on the anterior vaginal wall. The psychic influence of the improvement effected is powerful. All this *has* been attained, and, in my mind, is not little—compared with the result formerly obtained from treatment in this direction. How long this improvement will continue, or whether a relapse will occur sooner or later, I will not venture to say. But inasmuch as the morbid process was already so far advanced when it came under my treatment, I, for my own person, expect the disease to become worse again and end in death at some future time,—that is, as soon as the carcinoma extends to some internal organs that cannot be reached by the hypodermic syringe. Whether this disease can be definitely cured if treated sufficiently early, remains to be proved by further experience.

—A colleague of mine to whom I reported my case has placed an inoperable mammary carcinoma under the same regimen, and is thus far (since about 2 months) also well satisfied with the result.

—I publish these remarks for the sake of inducing my colleagues to experiment with PYOKTANIN; in my case the patient would have soon died without this treatment. As it is, she is still alive and even enjoys life again. The remedy will not help in every case, it may be true; but where is there a remedy in our materia medica—even among our specifics—which has never failed? PYOKTANIN has done real wonders in so many a desperate case; and we may hope it will do its full duty in many more in the future.

PILOCARPINE, in doses of 1 milligramme [$\frac{1}{64}$ grain] every 1–2 hours, is highly lauded in *chronic bronchitis*, as not only modifying the cough and bronchial secretions, but also augmenting the expectoration in quantity and improving the gastric functions.

THYME OIL (essential), made into a pill with soap and althæa, is said by Dr. GROSS to aid the *digestion of iron* in anemia and chlorosis. The daily dose is 2 minims, divided into 3 pills—one to be taken after each meal.

ANTIFEBRIN, in doses of 2 grains every two hours, or 8 grains three times a day, is recommended by Dr. GREEN in *acute bronchitis*,—the attack frequently subsiding within twenty-four hours.

IPECAC, in small doses, has been lauded as a valuable remedy for *gastric irritation*, and as an almost indispensable remedy in the treatment of many cases of *cholera infantum*.

CARBOLIC ACID (crystallized), mixed with an equal quantity of flexible collodion, has been reported to instantly dispel *toothache* from carious teeth.

NEW REMEDIES,

AND NEW LIGHT ON OLD ONES.

ATROPINE AS A UTERINE HEMOSTATIC.

In two cases of metrorrhagia defying all the means employed (ergot, extract hydrastis canadensis, ice, tamponing), and so profuse that the life of the patients appeared to be in danger, Dr. A. DIMITRIOW of Russia claims to have had complete success with subcutaneous injections of ATROPINE sulphate in doses of 3 decimilligrammes [$\frac{1}{200}$ grain], twice daily. In one of the patients, in whom the metrorrhagia had existed for fifteen days, the flow was definitely arrested after the fourth injection, which was followed by slight mydriasis. In the second patient, who was already in a state of collapse, the first injection restored the temperature and the pulse, the second perceptibly diminished the loss of blood, and the third—after which there survened slight mydriasis—definitely arrested the hemorrhage.

BENZENE, ANTHRACIC, IN INFLUENZA.

Dr. WM. ROBERTSON, of Glasgow, highly lauds ANTHRACIC BENZENE in epidemic influenza,—claiming for this treatment rapid amelioration of all the symptoms. The general results of its action are described as follows:

About two hours after the ingestion of the first dose, the headache and pain in the back disappear; in about six hours, the fever subsides, to return no more as long as the drug is continued. By this time the catarrhal symptoms, the suffusion of the eyes, and the flushing of the face have also become less prominent. There appears to be no tendency to the development of pneumonia in cases treated early and continuously with ANTHRACIC BENZENE.

The drug is dispensed in capsules or in mixture,—2 minims [0.1 gramme] for children, 5 minims [0.25 gramme] for adults every two or three hours. The following formula is recommended:

Anthracic Benzene, pure.....℥ LXXX [4 gm.].
Alcohol.....℥ SS [12 “].
Chloroform Spirit..... 3 ℥ [10 “].
Tragacanth Mucilage.....to ℥ VIII [250 “].
Tablespoonful every 3 hours, in lemonade.

In favor of ANTHRACIC BENZENE, Dr. ROBERTSON states that its use causes no inconvenience, and that it certainly does not reduce the patient in any way or interfere with digestion. It is recommended to continue the drug for three or four days after the disappearance of all symptoms.

CHROMIC ACID IN THE TREATMENT OF CYSTS.

Dr. W. R. H. STEWART of London reports on three cases of ranula and seven of cystic goitre treated with good results by means of CHROMIC ACID. The three cases of ranula occurred in two males and one female: the former had received previous treatment without any benefit; the latter had not sought advice before. All three had large cysts, and the mode of treatment followed was the same in each. A portion of the cyst was cut away, and the contents washed out. A saturated solution of CHROMIC ACID was then freely applied with a chromic-acid carrier to several points of the cyst wall. At the end of the week, the cavity having much diminished, the acid was again applied, and in from a fortnight to three weeks, the wound had healed and all signs of the tumor had disappeared. There were no untoward symptoms.

The seven cases of cystic goitre were in females. The tumors were tapped in the usual manner, and the contents washed out. After all hemorrhage had ceased, the saturated CHROMIC ACID solution was applied with a carrier through the canula to the walls of the cyst, in the same manner as with the ranulas. Six of the seven cases healed rapidly after from two to three applications, but the seventh (the second of the series) resisted for a long

time all attempts, and it was not until three months had passed and some half-a-dozen applications had been made that the tumor disappeared. But neither in this nor in any of the other cases was there a bad symptom, and the length of time the last-mentioned case took to heal is attributed to the fact that there was a considerable amount of hemorrhagic oozing, which to a certain extent neutralized the action of the acid. It is therefore advisable to see that hemorrhage is arrested as much as possible before applying the acid.

COD-LIVER OIL TOPICALLY IN LUPUS.

Prof. ZIELGEN of Nancy recommends (*Bullet. Méd.*) besides the internal administration of COD-LIVER OIL, the *local* application of the same in lupus, and claims thus to have obtained rapid cicatrization of the lupous surfaces. A case is described showing the effect of the treatment. A woman of 33, with lupus of the entire left cheek of three years' standing, had been treated in vain for 2½ years, when the affection rapidly spread over the right cheek, right half of the upper lip, forehead, and right eye,—threatening the latter in a high degree. Two months prior to the date of this report the following treatment was instituted. The affected parts of the forehead and cheeks were covered with strips of iodoform gauze, soaked with COD-LIVER OIL, while the diseased eye and upper lip were dusted with iodoform. The following day, all the affected parts, eye and lip included, were dressed with powdered iodoform. The next day, the diseased area was again dressed as on the first day, and on the fourth day as on the second, and so on. After fourteen days of this alternate treatment, the forehead and cheeks showed a tendency to heal, and after four weeks cicatrization was complete on these parts. On the other hand, the eye and upper lip showed violent suppuration. An intercurrent attack of erysipelas did not prevent the further favorable progress of the lupus, which ended in the complete cicatrization of those parts which had been treated with COD-LIVER OIL, while those dressed only

with iodoform continually grew worse, and finally got so bad that enucleation of the right eye appeared inevitable.

CREASOTE IN INFLUENZA.

Dr. J. ISELIN of Glarus (Switzerland) has found that CREASOTE in large doses exerts a remarkable and rapid curative action on epidemic influenza. He administers the medicament—according to *La Semaine Médicale*—in pills containing 0.05 gramme [$\frac{3}{4}$ min.] each, 20–50 of which are taken daily. One of his patients took on several occasions as many as 100 of these pills in six hours, without experiencing the slightest inconvenience (!).

In grippal rhinitis and laryngitis, inhalations of CREASOTE are recommended by the author as a very useful adjuvant to the internal treatment.

DIGITALIN IN PNEUMONIA.

Prof. R. LÉPINE reports (*La Sem. Méd.*) that he has employed DIGITALIN with astonishing results in over forty cases of pneumonia. The strongest variety—DIGITOXIN—was used, and prescribed whenever there were signs of *cardiac weakness* (rapidity and feebleness of the pulse, prolonged first sound, etc.). Generally 3 milligrammes [$\frac{1}{20}$ grain] were given in the morning; often, however, 1 or 2 milligrammes [$\frac{1}{60}$ – $\frac{1}{30}$ grain] were administered in the evening besides.

As a rule, the favorable action of this medication on the heart was manifest,—the oft nearly extinct pulse increasing in force. However, the author does not ascribe to DIGITALIN any specific action on pneumonia, but asserts that by means of this medicament we are able to successfully combat one of the gravest complications,—feebleness of the heart,—which often leads to a fatal termination of the disease in question.

HYOSCINE HYDROBROMATE is recommended by Prof. DA COSTA in the spasms of *cerebro-spinal meningitis*, in doses of one-hundredth grain.

DI-iodo-BETA-NAPHTHOL; A NEW COMPOUND OF THE ARISTOL CLASS.

M. BRAILLE has prepared from beta-naphthol a new substance, analagous to aristol, to which he has given the name of DI-iodo-BETA-NAPHTHOL. According to *Méd. Moderne*, it is prepared by mixing an aqueous solution of 27 parts of potassium iodide and 24 parts of iodine, with an aqueous solution of 110 parts of beta-naphthol and 40 parts of caustic soda, and then gradually adding to the mixture a solution of sodium hypo-chlorite corresponding to 10 times its volume of chlorine. The DI-iodo-BETA-NAPHTHOL is precipitated as a yellowish-green powder, which is collected, washed several times with water, and dried in the dark. On exposure to light, its greenish color becomes quickly intensified.

The finished product is described as an odorless and tasteless powder; insoluble in water, scarcely soluble in alcohol and in acetic acid, only partially soluble in ether, but very soluble in chloroform.—Definite therapeutical information on this new compound is yet wanting.

EUCALYPTOL IN MALARIA.

There are cases of malarial fever in which quinine fails,—for instance, where the afebrile stage is short, or where, in consequence of a catarrh or an inflammation, the action of the quinine fails to be developed, as has been pointed out by Prof. KORÁNYI. For this reason, Dr. PETER BURO of Kubin made a series of experiments with *Eucalyptus* preparations, wherein he noticed that the internal administration was not followed by as good results as the subcutaneous (*Therap. Monatsh.*). He employed EUCALYPTOL (rectified and purified oil of eucalyptus globulus) diluted with oil, because the undiluted EUCALYPTOL may produce abscesses. The injections were made during the paroxysms; and, according to Dr. BURO, the dose of 0.33 gramme [6 minims] sufficed to cure both the paroxysm and the disease.

One drawback to this treatment was observed: *relapses* supervened more frequently

than after the quinine treatment. These relapses, however, were successfully treated by means of *quinine*.

GUAIACOL CARBONATE IN PHTHISIS.

GUAIACOL CARBONATE— $\text{CO}(\text{OC}_6\text{H}_4\text{OC}_6\text{H}_5)_2$ —has been introduced by Drs. SEIFERT (of Dresden), and F. HÖLSCHER (of Mülheim), as a succedaneum for guaiacol and creasote in the treatment of pulmonary tuberculosis. It is described (*Berliner Klin. Wochen.*) as an odorless, tasteless, neutral, crystalline powder of definite chemical composition, melting between $86-90^\circ \text{C}$ [$186.8-194^\circ \text{F}$]; insoluble in water. When ingested, it is decomposed into chemically pure guaiacol—which is immediately absorbed—and carbonic acid. This decomposition takes place only in the intestine, if the stomach is healthy; but if the latter is the seat of putrid fermentations,—as often is the case in phthisical patients,—the decomposition of the medicament takes place also in the stomach, with the effect of causing the disappearance of the gastric disturbance—owing to the microbicide action of the disengaged guaiacol. The latter can be detected in the urine 30–60 minutes after the ingestion of GUAIACOL CARBONATE.

GUAIACOL CARBONATE was administered to 60 phthisical patients at the THREE-KINGS HOSPITAL, (Mülheim-on-the-Rhine), in doses of 0.2–0.5 grammes [$3-7\frac{1}{2}$ grains] once or twice a day, gradually increased, when necessary, to 6 grammes [90 grains] daily. However, much smaller doses—for instance, 2 grammes [30 grains] per diem—often were sufficient.

It is claimed that, in consequence of this treatment the appetite was sharpened, the bodily weight increased, the cough and expectoration lessened, the fever and night-sweats gradually disappeared, the râles diminished and sometimes even disappeared, the tuberculous cavities in the lungs decreased in size, the bacilli in the sputum became less abundant, and the expectoration lost its purulent character.

According to Drs. SEIFERT AND HÖLSCHER, GUAIACOL CARBONATE is always well borne,—

provoking no disturbance of the digestive or circulatory organs, or of the nervous system, even when taken in large doses on an empty stomach.

HYDRASTININE HYDROCHLORATE CONFIRMED AS A HEMOSTATIC.

Dr. EMANUEL relates (*Therap. Monatsh.*) his experience with HYDRASTININE HYDROCHLORATE—previously described in this journal—at his private gynecological clinic, and at the Polyclinic of Dr. CZEMPIN, Berlin. The remedy succeeded in arresting the bleeding within 24–36 hours in 26 of the 48 cases of uterine hemorrhage (from widely different causes) in which it was employed,—a result which the author claims has not been attained by any other medicament. It was administered in gelatine capsules, each containing 0.025 gramme [$\frac{3}{8}$ grain],—4 daily until the hemorrhage ceased. Never were any disagreeable accessory symptoms provoked.

—Dr. PAUL STRASSMANN has published (*Wien. Med. Presse*) his experience with HYDRASTININE HYDROCHLORATE at LÖHLEIN's Clinic, Giessen. Of 27 gynecological cases, it exerted a decidedly beneficial influence on 24,—the hemorrhage ceasing in from two to three days. It was administered in pearls, each containing 0.025 gramme [$\frac{3}{8}$ grain],—4–5–6 (!) daily. The latter author also failed to observe any untoward symptoms either from the internal or from the subcutaneous use of the HYDRASTININE HYDROCHLORATE: on the contrary, in some of his cases the appetite was improved.

ICHTHYOL IN OTORRHEA.

Dr. KARL MORELLI feels induced to direct attention (*Der Aertzl. Prakt.*) to ICHTHYOL as a remedy in middle-ear disease. He obtained most encouraging results in 6 obstinate and inveterate cases of otorrhea from syringing with a one-per-cent solution of this antiseptic, after irrigation with 3 per-cent boric-acid solution and with 1:2000 corrosive sublimate solution had proved of no avail.

IODINE INJECTIONS IN MALIGNANT PUSTULE.

An interesting account of three cases of malignant pustule, successfully treated by Don A. M. AYUSO by means of hypodermic injections of IODINE, is given in *The Lancet*. In two of the cases, the seat of the affection was the neck, which is usually considered a particularly dangerous situation. In one of them, indeed, there were symptoms of pressure on the larynx. In both cases incisions and powerful caustics had been previously applied, without appearing to have any effect before the IODINE treatment was resorted-to on the fourth day from the commencement of the symptoms. The pure tincture was used in one case, while in another it was diluted to half strength. The injections were made around the tumor at intervals of from two to three centimetres [$\frac{4}{5}$ – $1\frac{1}{2}$ inches], and were not repeated. In a third case, which was that of a little child, the solution used was composed of four parts of IODINE tincture, one potassium iodide, and eight water,—about seventy-five drops being injected altogether around the pustule, which was situated on the forehead. In this case and in one of the others, an attack of convulsions followed the injections. Notwithstanding this, Dr. AYUSO is in favor of giving the injections of a considerable strength, so as to kill the virus at once. The needle should be inserted to the depth of from two to three centimetres [$\frac{4}{5}$ – $1\frac{1}{2}$ inches], in the edematous zone bordering upon the indurated tissue. It is well, too, to press the piston of the syringe down at once rather than gradually.

CAJUPUT OIL—10 minims on sugar every $\frac{1}{2}$ –1 hour—has been lauded in the treatment of croup.

RESORCIN, in 5-to-10-grain doses, dissolved in plenty of water, and flavored with orange-peel syrup, is reported to relieve the nausea and depression following the excessive use of alcoholic stimulants.

OXALIC ACID AS AN EMMENAGOGUE.

Dr. MARSH considers OXALIC ACID one of the best emmenagogues we possess. He has employed it with uniform success in a large number of cases of amenorrhea from various causes. According to the author, its superiority lies in the absence of taste and of all irritant action on the stomach, and in its certainty of action. It is also recommended as a sedative in acute cystitis. Dr. M. prescribes the following solution (*Journ. de Méd. de Paris*):

Oxalic Acid.....gr. xv [1 gm.].
 Orange-peel Syrup.....fl ʒ vi [30 “].
 Distilled Water... enough to make fl ʒ iv [120 “].
 Teaspoonful every 4 hours.

QUININE ; INDICATIONS FOR ITS USE.

MANQUAT gives a summary of the indications for QUININE. In *malaria*, he says it is efficacious in all types, besides being a preventive.

LAVERAN showed that malarial microbes disappear from the blood after QUININE has been taken for a certain time, and that the addition of a minute quantity of a weak solution to malarial blood destroys them. He believes the white blood-corpuscles are not directly influenced, but enabled more easily to subdue and seize upon the micro-organisms rendered dead or moribund by the drug. If given during or just before the onset of an attack, QUININE has no power to check it, while this may be prevented if taken at a sufficient interval beforehand. BACCELLI (according to *The British Medical Journal*) made intravenous injections of 1 gramme [15 grains] during the onset, but during the first six hours could recognize no modification in form, number, or movement of the microbes.

As the largest part of a given dose of QUININE is eliminated during the sixth hour after ingestion, while according to LAVERAN it is during the onset that the microbes are present in the blood in greatest number, the drug should be given at an interval of about six hours before an expected attack. QUININE should be taken 8 hours before shivering ap-

pears in quotidian ague, 12 hours before in tertian, and from 18-24 hours beforehand in the quartan variety. To these figures, however, another hour should be added; half an hour on account of the tendency of the onset of successive attacks to be antedated to that extent, and half an hour as allowance for imperfect absorption from impaired gastric action. For the last reason also, and to obviate its rejection, the required quantity should be given in two or three divided doses at half-hour intervals. Two doses, 8 to 10 hours before the expected onset of shivering, are almost always effectual. If the result be unsatisfactory, an aperient should be given.

LAVERAN states that no microbes are found in the blood of malarial patients after QUININE Sulphate has been taken for eight days in doses of 0.6-0.8 gramme [9-12 grains]; but that if after three or four doses it be discontinued, the microbes reappear, and a relapse occurs. Upon this is based his scheme of treatment, namely: During the first three days, 0.8-1 gramme [12-15 grains] of QUININE Hydrochlorate daily. No QUININE during the 4th, 5th, 6th, and 7th days. On the 8th, 9th, and 10th days, 0.6-0.8 gramme [9-12 grains]. None from the 11th to the 14th day. On the 15th and 16th days, 0.6-0.8 gramme [9-12 grains]. None from the 17th to the 20th days. On the 21st and 22nd days, 0.6-0.8 gramme [9-12 grains]. In very severe cases recourse should be had to hypodermic or intravenous injection, or injection into the respiratory tract. A gramme [15 grains] of a salt of QUININE may be injected subcutaneously, and repeated after a short interval; as a rule, 1½-2 grammes [23-30 grains] are sufficient. The injection should be made into the deep subcutaneous tissue to avoid complications. The following formula may be used:

Quinine Sulphate.....gr. xv [1 gm.].
 Tartaric Acid.....gr. viiss [0.5 “].
 Distilled Water.....3 iiss [10 “].

Antipyrine greatly enhances the solubility of QUININE; 1 gramme [15 grains] QUININE Hydrochlorate with 0.5 gramme [7½ grains]

antipyrine will dissolve in 2 grammes [$\frac{1}{2}$ fl. dr.] of water. When with severe depression there is reason to believe no absorption has taken place, the solution may be injected into the trachea through the crico-thyroid membrane.

BACCELLI recommends intravenous injection as the most prompt and efficacious method in very grave cases. The following formula is recommended:

Quinine Hydrochlorate.....gr. xv [1 gm.].
Sodium Chloride.....gr. xii [0.8 “].
Distilled Water.....3 ii ss [10 “].

The solution should be injected very slowly into one of the small venous branches at the bend of the arm.

In continued malarial fevers QUININE must be given in larger doses. LAVERAN advises 1.5–2 grammes [23–30 grains] daily (0.6 gramme [9 grains] morning, 0.9 gramme [14 grains] evening), till fever disappears. This nearly always happens by the second or third day. If fever persists with four days' treatment, it may be assumed to be non-malarial. When the temperature falls, 0.6–0.8 gramme [9–12 grains] should be given daily for a short time. In malarial cachexia QUININE wine may be taken with meals, but not fasting, or long before food; otherwise gastralgia and dyspepsia ensue.

As a preventive QUININE is not effective in smaller doses than 0.25–0.3 gramme [$3\frac{3}{4}$ – $4\frac{1}{2}$ grains]. It should be given also in all malarial complications and incidental affections (for example,—neuralgia, hemorrhage, pneumonia).

In *typhoid fever* JACQUOD and others restrict its use to certain conditions, namely, non-remission of fever, or very slight morning remission; an uninterrupted series of evening temperatures over 104° F. [40° C]; cardiac failure.

In *pyemia* QUININE in large doses (1–2 grammes [15–30 grains]) is the only remedy which has been in some measure successful; but as it has often failed when given alone, a definite conclusion as to its value cannot yet be drawn.

In *acute articular rheumatism* it has been

frequently given with success, but is of much less efficacy than the salicylates or antipyrine.

In *Ménière's disease* QUININE has been given with some success in daily doses of 0.6–0.8 gramme [9–12 grains] for one or two weeks, followed by discontinuance for an equal period, and then by renewal of similar treatment.

The first doses appear to cause exacerbation of the symptoms, and must be continued for some time before improvement occurs.

In *blennorrhagia*, tepid 1-per-cent injections of QUININE Sulphate have often proved of marked service. Rapid improvement began from the first, and continued till the fifth day, when as a rule only a drop of cloudy discharge appeared. Complete recovery did not, however, ensue for some little time.

The following is JULLIEN'S formula:

Quinine Sulphate..... gr. xv [1 gm.].
Bismuth sub-Nitrate.....gr. LXXV [5 “].
Acacia Mucilage.....3 ii [10 “].
Glycerin.....3 vi [30 “].
Distilled Water (warmed).....3 iv [120 “].

Regarding the mode of administration of QUININE generally, the sulphate, though most often used, is less suitable than the hydrochlorate, which is more soluble, contains more quinine, and is less subject to mold. A solution of 1 in 20 is very useful, but very bitter. On account of this, and its concentration, it is well to prescribe half a tumbler of some drink afterwards; coffee is a good menstruum.

For rectal injection the desired quantity of QUININE should be dissolved in 100–120 grammes [$3\frac{1}{4}$ –4 fl. oz.] of tepid water. If opium is not contra-indicated, the addition of 10 grammes [$2\frac{1}{2}$ fl. drs.] of laudanum is useful. The injection should be preceded by a simple enema.

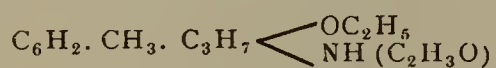
ICHTHYOL has been employed by Dr. KÖSTER in *gonorrhœa*, both in males and in females, and with very good results. In men he orders 3 injections of a 1% solution daily. On the second day the scalding and chordee disappear completely, and the cure is effected in from 8–20 days.

SILVER NITRATE IN WEEPING ECZEMA.

Dr. LEVEN of Elberfeld strongly recommends SILVER NITRATE in 1% solution for the treatment of obstinate cases of "weeping" eczema. He employs it as a lotion, several times daily, half an hour each time (*Deut. Med. Wochenschr.*). In the intervals, the affected parts are covered with bismuth-sub-nitrate ointment, which is washed off before re-applying the lotion. According to the author, the transudation promptly ceases, the "weeping" parts of the skin heal over rapidly, the annoying subjective symptoms disappear, and, with proper care, the cure is completed smoothly. He has never observed any cutaneous irritation to follow the application of the SILVER NITRATE lotion.

THYM-ACETIN AS AN ANALGESIC AND HYPNOTIC.

At a recent meeting of the BERLIN ASSOCIATION FOR PSYCHIATRIA AND NERVOUS DISEASES, Prof. F. JOLLY, of Berlin, demonstrated a preparation called THYM-ACETIN—made and named by the chemist HOFMAN, of Leipsic. It is a derivative of thymol, to which it is related similarly as phen-acetin is to phenol. Its chemical formula is:



It is described (*Deut. Mediz.-Zeit.*) as a white crystalline powder; only slightly soluble in water.

The professor has experimented with THYM-ACETIN in a number of nervous and mental affections, and has found that it possesses undoubted analgesic and hypnotic properties. As an analgesic it proved serviceable in *nervous headaches*; while it appeared to exert no influence on cephalalgia due to organic disease of the brain, nor on true migraine. As a hypnotic, it was administered to 26 patients (paralytics, delirants, etc.), in 16 of which the somniferous action of the medicament was obtained, while in the remaining 10, no hypnotic effect was produced. The doses ranged from 0.25–1 gramme [$3\frac{3}{4}$ –15 grains],—the usual hypnotic dose being 0.5 gramme ($7\frac{1}{2}$ grains].

STROPHANTHUS, IN COMBINATION WITH IRON, AS A TONIC.

Dr. LUDWIG VACZI, of Nagy-Karoly, recommends the simultaneous administration of STROPHANTHUS Tincture and Bland's ferruginous pills in those cases of chronic anemia in which, after the long and uninterrupted use of iron, the patients complain of indigestion, nervousness, palpitation and insomnia, and it becomes necessary to interdict the further use of iron for some time—even at the risk of increasing the anemia. He has found this new mode of treatment to answer well in several severe cases of anemia consequent upon flooding.

ARSENIC is avoided in the treatment of cutaneous affections in *elderly persons* by Dr. J. HUTCHINSON, of London; unless the disease imperatively demands it, he never prescribes it for them.

SEA-SALT in aqueous solution, rubbed into the affected part, has been recommended for the *stings of bees*. Pain and swelling immediately disappear, and do not survene at all if the inunction be made directly after getting the sting.

TURPENTINE in its raw state, applied directly to the tonsil with a camel's-hair brush two or three times daily, is claimed by Dr. G. M. RUTLEDGE to produce good results in *tonsillitis*: it lessens the pain from the secretion of the viscid mucus which accrues in this trouble. However, it must be applied thoroughly to be efficient..

CONDENSED MILK has been recommended as a good constituent for *emulsions*, in the following formula: Cod-liver oil, 8 parts; glycerin (or syrup) and condensed milk, 3 parts each; distilled water, 2 parts. The milk is rubbed-up in a mortar; then the oil is gradually added, followed by the water and glycerin (or syrup); finally a few bitter almonds are added for taste.

PRACTICAL HINTS

ON METHODS IN THERAPY, PHARMACY, ETC.

OPIATES—THEIR DOSAGE IN INFANT PRACTICE.

According to Prof. MONTI.

AGE.	OPIUM TINCTURE, Simple.		DOVER'S POWDER.	
	Mixture.	Dose of the Mixture.	Dispensation.	Adminis- tration.
Under 6 weeks.	0.06 gramme [1 min.] in 100 grammes [$3\frac{3}{8}$ fl. oz.] of fluid.	3.75 cubic centimetres [1 fl. dram].	0.05 gramme [$\frac{3}{4}$ grain] divided into 10 powders.	2-3 powders, daily.
6 weeks to 3 months.	0.06 gramme [1 min.] in 70 grammes [$2\frac{3}{8}$ fl. oz.] of fluid.		0.07 gramme [$1\frac{1}{8}$ grains] divided into 10 powders.	One powder every 2 hours.
3-9 months.	0.12 gramme [2 min.] in 100 grammes [$3\frac{3}{8}$ fl. oz.] of fluid.		0.1 gramme [$1\frac{1}{2}$ grains] divided into 10 powders.	
9-12 months.	0.12 gramme [2 min.] in 70 grammes [$2\frac{3}{8}$ fl. oz.] of fluid.		0.1 gramme [$1\frac{1}{2}$ grains] divided into 10 powders.	
1-2 years.	0.18-0.25 gramme [3-4 min.] in 100 grammes [$3\frac{3}{8}$ fl. oz.] of fluid.		0.1-0.2 gramme [$1\frac{1}{2}$ -3 grains] divided into 10 powders.	

CORYZA—ACUTE.

Dr. TISSIER (*Annales de Méd.*) gives several formulas for the treatment of this annoying affection. Inhalations of a mixture of carbolic acid and ammonia-water have been recommended (by HAYEM). The following is quoted as a much-employed formula:

Carbolic Acid	} of each, 1 part.
Ammonia-water	
Distilled Water	} of each, 3 parts.
Alcohol	

Pour a few drops on a piece of blotting-paper, and inhale for a few seconds.

This means affords relief, but does not always arrest the inflammation. The author does not depend much upon atropine, although the latter has been highly lauded by some authorities. Nasal injections he considers useless in the beginning of the disease,—yea even as not free from inconveniences. As a very useful formula for a *snuff*, the following is mentioned:

Bismuth sub-Nitrate.....	} of each, 3 ISS [6 gm.].
Powd. Benzoin.....	
Powd. Boric Acid.....	3 I [4 “].
Menthol.....	gr. III [0.2 “].

A pinch 5 or 6 times daily, well drawn up.

1-5 centigrammes [$\frac{1}{6}$ - $\frac{3}{4}$ grains] of morphine, and 1-1½ grammes [15-23 grains] of calomel may be added to the formula.

For the irritation about the nostrils, the following pomade is recommended:

Bismuth sub-Nitrate.....	} equal parts.
Vaselin.....	

Dr. COUPARD recommends the following snuff for “colds in the head,” and for the headaches and the slight asthmatic attacks at the outset of coryza:

Cocaine Hydrochlorate.....	gr. II ss [0.15 gm.].
Menthol.....	gr. IV [0.25 “].
Powd. Boric Acid.....	gr. XXX [0.2 “].
Powd. Roasted Coffee.....	gr. VISS [0.5 “].

5 or 6 pinches daily.

Dr. MORELL MACKENZIE lauds the follow-

ing in the beginning of a cold,—not to be taken longer than 24 hours, however:

Morphine Sulphate.....gr. 11 [0.13 gm.].

Bismuth sub-Nit....enough to make 31 [4 "].
Snuff!

As a *preventive of bronchitis* the following pills are recommended:

Hyoscyamus Extr..... } of each, gr. vi [0.4 gm.].
Powd. Aconite..... }

Calomel..... } of each, gr. 1ss [0.1 "].
Powd. Ipecac..... }

Divide into 4 pills!—2 to be taken in the evening, and followed the next morning, before breakfast, by a solution of sodium tartrate in senna infusion.

HEART HYPERTROPHY AND DILATATION IN ADOLESCENTS.

Dr. R. BLACHE has made a careful and thorough study of cardiac hypertrophy and dilatation occurring during adolescence independently of endocarditis or pericarditis. As causes of dilatation he mentions (*Rev. des Mal. de l'Enfance*), first, over-fatigue and under-feeding; secondly, over-pressure and under-exercise; and lastly, over-strain at games. Hypertrophy—he continues—may be secondary to the dilatation (being usually observed in the latter condition sooner or later), or it may be due to a disproportion between the rate of growth of the heart and that of the body in general. Under normal conditions, the heart increases in size steadily between 5 and 10 years of age, grows more slowly between 10 and 15, and increases more rapidly again between 15 and 20. This physiological increase may take place with undue rapidity and the heart become hypertrophied as compared with the rest of the body; on the other hand, the heart may fail to grow as rapidly as the rest of the body, in consequence of which there will result dilatation with secondary hypertrophy. Much importance is attached to the diagnosis, since, with ordinary precautions, the prognosis is favorable—because the hypertrophy is only relative, and when growth is complete, the balance between the heart and the body is restored.

In the meantime, however, the patient suffers from symptoms which may prevent him from undertaking the mental and physical exertions proper to his age. As the most prominent and constant symptom Dr. BLACHE mentions *tachycardia*; palpitation is brought on by the slightest effort, and may be accompanied by severe dyspnea,—the attacks thus simulating asthma, for which they may be mistaken. In some cases headache—usually frontal—is the most marked symptom, and is provoked by mental exertion; sometimes it is replaced by a feeling of compression.

The diagnosis must be made after careful physical examination, and after the history of the case has been fully elicited. In the absence of any history of rheumatism, scarlatina, diphtheria, pleurisy, pneumonia, or nephritis, the author regards the presumption as being in favor of simple hypertrophy or dilatation—as the case may be.

As for treatment, the indications—according to Dr. B.—are two-fold: first,—to quiet the heart; secondly,—to improve the general development, especially that of the thorax. To meet the first indication, digitalis with or without iron, caffeine, and tincture of convallaria majalis alone or with potassium iodide, are recommended. If tachycardia is the most prominent symptom, the tincture of lily-of-the-valley is relied on,—7–10 minims [0.45–0.6 gramme] morning and evening. Friction with a woolen glove, dry or with alcohol, has been found more useful than hydrotherapy. The exercise taken—particularly the gymnastic—must be carefully considered; it may be necessary to increase or diminish it, or merely to regulate the manner in which it is taken.

STRONG VINEGAR—a few drops on a small lump of sugar and held in the mouth until dissolved—has been recommended in *hiccough*.

SODIUM SALICYLATE, in doses of 15 grains 3 times a day, Prof. DACOSTA says, will markedly control the formation of sugar in *diabetes mellitus*.

LARYNGITIS OF SINGERS.

Dr. FAULKNER recommends the following treatment for acute laryngitis from straining of the voice (*Journ. de Clin. et de Thér.*):

At first a purgative is administered; then inhalations of a cocaine spray (1 : 100) are practiced, while a mixture containing ammonium chloride and aconite tincture is administered internally. Occasionally during the day the patient should take one of the following pastilles:

Morphine.....	gr. $\frac{1}{8}$ [0.01 gm.]
Cocaine Hydrochlorate.....	gr. $\frac{1}{8}$ [0.01 “]
Aconite Tincture.....	℥ VIII [0.6 “]
Powd. Althea.....	gr. IV [0.25 “]
Sugar.....	a sufficient quantity.
Divide into 10 pastilles.	

When the acute symptoms have diminished *strychnine* is prescribed in doses of $\frac{1}{2}$ milligramme [$\frac{1}{10}$ grain], before meals. It is advised to repeat this dose also immediately before the voice is to be used.

MORPHINISM.

In the last published report of the Private Hospital at Ober-Döbling, Prof. OBERSTEINER (*Wien. Med. Presse*) makes some very interesting remarks on the treatment of this MORPHINISM. He regards *individualization* as the fundamental principle of the treatment. Weaning, he says, should not be instituted too slowly, nor, on the other hand, abruptly. He usually begins with that daily dose of morphine which the patient designates as the customary one, and at first diminishes it as rapidly as is possible without occasioning serious disturbances. When the dose of but a few centigrammes is reached, the quantity of morphine is reduced more slowly, for in this period even the smallest doses are spared with difficulty, and relief to the patient becomes necessary.

As regards the latter, warm baths of 5-15 minutes' duration, eventually associated with cold douches, or with wet packs (20-24° R [77-86 F]), in which the patients may remain for $\frac{1}{2}$ -2 hours, often exert an agreeable

influence. Alcohol in large quantities also frequently affords relief. *Cocaine* should serve no other purpose than to temporarily moderate the most violent symptoms consequent upon abstinence. Recourse should be had to this medicament only when the symptoms resulting from the abstinence begin to get very violent,—that is, about 24-48 hours after the last dose of morphine. It should always be administered *internally*,—never subcutaneously—and preferably in the following solution :

Cocaine Hydrochlorate.....	gr. x [0.6 gm.].
Salicylic Acid.....	gr. II [0.12 “].
Distilled Water.....	℥ IV ʒ 120 “].

The dose of cocaine should be 0.05-0.1 gramme [$\frac{3}{4}$ -1 $\frac{1}{2}$ grains], several times a day; never should the daily dose of 0.5 gramme [$7\frac{1}{2}$ grains] be exceeded. On the second or third day, the daily dose is rapidly diminished, the cocaine treatment being entirely abandoned after 5-6 days. Great stress is laid on the improvement of the nutrition. In case of collapse, morphine must again be resorted to. Patients with cardiac lesions should *not be entirely weaned* of the morphine.

NEPHRO-LITHIASIS.

Dr. E. GOLOWIN, physician to MARY'S HOSPITAL FOR THE POOR, St. Petersburg, has been convinced by numerous clinical observations, that the best means of causing the disappearance of urinary gravel and of avoiding renal colic, consists in the prolonged use of the following mixture (*St. Petersb. Medic. Wochenschr.*):

Calcined Magnesia.....	} of each, equal parts
Prepared Chalk.....	
Two teaspoonfuls three times daily, during meals.	

With this treatment, and even without at all changing the patient's customary diet, there is obtained—it is claimed—a rapid suppression of the deposit of urates and of oxalates in the urine, prompt disappearance of the sciatica—so common with lithic patients—as well as the psychic depression and the various symptoms of neurasthenia; the digestive functions are improved (in consti-

pated patients, the stools become more regular, and the abdominal distention disappears), and the nephritic colics—formerly so frequent—appear no more.

Although the urine becomes less acid under the influence of the magnesia and chalk, it does not show any increased cloudiness from the precipitation of phosphates upon being boiled.

The favorable action of the treatment is explained—according to the author—by the supposition that the magnesia and the chalk, in combining with phosphoric acid, set at liberty a sufficient quantity of soda to neutralize the uric acid.

PNEUMONIA IN CHILDREN.

BAGINSKY has formulated the following rules in regard to antipyresis in infantile pneumonia.

1.—The antipyretic treatment is permissible only to such extent as will not cause a weakening of the muscular power of the heart.

2.—Such antipyretics as exert a pernicious influence on the cardiac muscle or on the blood-corpuscles should be used only with the greatest care.

3.—If the use of antipyretic drugs or measures is decided upon, the injurious accessory actions of the antipyretics employed must be guarded-against by the simultaneous administration of such remedies as sustain the muscular power of the heart.

His method of treating pneumonia (as well as all infectious diseases) would be, briefly stated, a mild and very cautious antipyresis, besides the most careful employment of roborants and excitants. The antipyretic to be recommended most—in the author's opinion—is the *cold pack*,—on account of its refreshing action on the nervous system, and the ease with which it can be managed. Dr. B. orders children with fever to be wrapped, naked, in wet linen cloths of 13–15–18° R [61.2–65.7–72.5 F],—the head (excluding the face, of course), shoulders, arms, and legs being thoroughly enveloped,—after which they are wrapped in woolen blankets. After 10 minutes

the wet linen cloth is replaced by another one. Frequently this procedure is repeated even a third time, so that the entire packing takes up half an hour. In the last pack the child may remain about 30 minutes, after the lapse of which it is dried, and left in bed, lightly covered. The packing is repeated—if necessary—2 or 3 times daily. In the intervals, strong, nourishing wine (sherry or port, in doses of 1–3 teaspoonfuls—according to age) is administered—even to very small children. The heat-detracting effect is not alike in all cases, it may even be entirely wanting under certain circumstances; in the majority of cases, however, it is so considerable as to cause a fall in temperature, amounting—as stated in the *Aerztlicher Praktiker*—to 1–1.5–2° C [1.8–2.7–3.6 F].

Still the cold pack is not used in every case of pneumonia—not always even when the temperature is very high; but rather only when the febrile rise is associated with severe general symptoms, and particularly when the nervous system is much affected at the same time. Just in such cases it is very serviceable.

The non-appearance of the antipyretic effect is prognostically important, serving as a guide in the judgment of the severity of the attack. In such cases, the internal antipyretics, as a rule, are also inefficacious; or they are prone, when used in increased doses, to provoke attacks of collapse dangerous to life. Occasionally the administration of internal antipyretics may be combined with the cold pack.

SCARLATINAL NEPHRITIS; ITS PROPHYLAXIS.

The well-known fact of the favorable and even directly curative action of the absolute milk-diet in scarlatina nephritis, has suggested to Dr. ZIEGLER (*La Sem. Méd.*), of Potsdam, the idea of subjecting to the same regimen all cases of scarlatina from their very start, in the hope of thereby preventing the renal complications of the disease. The results obtained have been conclusive and complete. He has for six years been treating all his cases (about

100) of scarlatina with the strict milk-diet, and has never observed a single instance in which nephritis developed.

The first few days, when the anorexia is complete a little milk mixed with some mineral water is given the patient as drink. But as the need of nourishment begins to make itself felt, the child takes $\frac{1}{2}$ –3 litres [about 1–6 pints]—according to age—of boiled milk daily. A little bread or biscuit is also allowed.

This treatment is continued in all its rigidity during the first three weeks of the disease, after which the customary diet is gradually returned to.

VULVAR ECZEMA.

The following plan of treatment is recommended by Dr. LUSCH for vulvar eczema (*Journ. des Sage-Femmes*):

A lotion is made as follows:

Sodium bi-Carbonate.....	3 II	[8 gm.].
Potassium bi-Carbonate.....	3 I	[4 “].
Glycerin.....	3 ISS	[6 “].
Opium Tincture.....	3 II	[8 “].
Water.....	$\frac{3}{4}$ VIII	[250 “].

This lotion is applied morning and evening. After each application the vulva is dusted with the following *dusting-powder*:

Powdered Camphor.....	I part
Powdered Starch.....	49 parts.

IODOFORM DEODORIZATION.

Dr. JAKSCH asserts that all the antiseptics having a specific odor possess the property of completely masking that of iodoform, while, at the same time, their own odor also becomes scarcely perceptible. Thus, the following antiseptics might be employed to deodorize iodoform:

Creolin-Pearson, Thymol, Naphthalene, Tar, etc. The author prefers the first-mentioned. CREOLINIZED IODOFORM (containing 1–2 parts CREOLIN-PEARSON in 100), well-triturated, forms a light-brown powder of a feebly aromatic odor, soluble in alcohol and in ether; water dissolves out the creolin, but leaves the iodoform undissolved. Dr. J. (*Méd. Moderne*) has employed CREOLINIZED IODO-

FORM in the treatment of wounds, abscesses, etc., in powder form or on gauze, with results not inferior to those obtained from iodoform alone,—on the contrary, this preparation advantageously diminished the secretions and stimulated the granulations.

According to Dr. LAURA GOODMAN (*ibid.*), MENTHOL renders IODOFORM completely inodorous. Upon placing a stick of menthol into a bottle half-full of iodoform, it will be noticed—the doctor says—that the odor of the latter disappears entirely after 1 or 2 hours.

Finally CUMARIN should be noticed, particularly the *synthetical* preparation, which is lauded to possess the property of almost completely disguising the odor of IODOFORM and of even substituting its own aromatic and agreeable odor for that of the latter drug.

CRESYLIC ACIDS (CRESOLS); HOW TO PREPARE NEUTRAL AQUEOUS SOLUTIONS THEREOF.

By adding CRESYLIC ACID to a very concentrated aqueous solution of sodium salicylate, a mixture is obtained which allows of being diluted *ad libitum* with water, without the CRESYLIC ACID separating upon standing. As stated in the *Pharma. Journ. and Trans.*, no double compound is formed—a neutral aqueous solution of CRESYLIC ACID being obtained. It matters little whether *meta*-, *ortho*-, or *para*-CRESYLIC ACID is used, or mixtures with one another or with the higher-boiling phenols.

The sodium salicylate may be replaced by other salicylates, by *ortho*-oxy-benzene-carboxylates, or by salts of phenols and naphthols.

—By bacteriological experiments it has been determined that solutions of CRESYLIC ACID prepared by means of sodium cresotate are the best for therapeutic use: a $\frac{1}{2}$ % solution is said to be sufficiently strong for most purposes, free from irritant or caustic action, and more powerful as a bactericide than a 5% solution of carbolic acid.

KEROSENE is reported as preventing surgical instruments from *corroding*, and to keep them perfectly aseptic.

HYDROCYANIC ACID IN THE BLOOD; ITS DETECTION.

Prof. R. KOBERT, of Dorpat, has recently made a large series of experiments in regard to the analysis of blood for hydrocyanic acid, the main result of which has been to prove that this acid forms with met-hemoglobin a body called cyan-met-hemoglobin—intensely red in color, and distinguishable from oxy-hemoglobin and its modified combinations (which are also red) by the spectroscope only. Neither the oxy-hemoglobin spectrum, nor that of the alkaline red met-hemoglobin is shown by cyan-met-hemoglobin in the spectroscope; nor any characteristic absorption-band. It is the cyan-met-hemoglobin that causes the intensely red color of the blood after hydrocyanic acid poisoning in all places where met-hemoglobin can be found. According to the professor, the presence of hydrocyanic acid in the blood can easily be detected by the following process:

Dilute 1 cubic centimetre of blood with 99 times its volume of distilled water; then add a freshly prepared 1% solution of potassium ferro-cyanide drop by drop, agitating continuously. If the blood is free from hydrocyanic acid, the liquid changes its color from red to *yellow*,—owing to the formation of met-hemoglobin,—and in the spectroscope the spectrum of the latter substance is seen; but if the blood examined contains hydrocyanic acid, it becomes *bright-red*, and shows no absorption-band in the spectrum, in consequence of the formation of cyan-met-hemoglobin.

By the same process any organ of the body may be analyzed for hydrocyanic acid if it has previously been *distilled in acetic acid*. In these experiments neither the diluted blood nor the liquids examined should be alkaline, but rather be *slightly acid* in reaction,—because met-hemoglobin also becomes red in alkaline fluids.

Another method given by the author is based on the fact that the self-reduction of the blood is arrested by the presence of even the smallest quantity of hydrocyanic acid: a 1%

solution of normal blood darkens when standing, and shows after the lapse of some hours or days, in place of the oxy-hemoglobin spectrum, the spectrum of reduced hemoglobin—only *one* yellowish-green band instead of two; while blood containing hydrocyanic acid remains *unchanged* under the same circumstances.

TUBERCLE BACILLUS; FRÄNKEL'S STAINING METHOD,—MODIFIED.

The stain is made by dissolving 1 part of fuchsine in 100 parts of a 5% aqueous solution of carbolic acid, and adding 10% of absolute alcohol. A sufficient quantity of this fluid is poured into a watch-glass, and heated over a spirit-lamp until steam rises freely and the temperature is not very far from the boiling-point. The cover-glasses, prepared in the usual way, are then floated in the stain for 2 minutes, which is quite long enough if the right temperature has been reached; the watch-glass should then be covered. *Immediately after their removal* from the fuchsine solution, the cover-glasses are immersed for one minute in a liquid prepared by dissolving 1–2 parts methylene blue in 100 parts of 25% sulphuric acid until a deep color is obtained. They are then flooded with water, dried, and mounted in balsam. The whole process of staining and mounting occupies about 6 minutes. This method is lauded as preferable to any other.

URINE-ALBUMIN; A NEW TEST FOR.

Dr. EDWARD SPIEGLER, of Prof. KAPOSI'S dermatologic clinic, believes to have discovered a test for urine-albumin still more delicate than the potassium-ferro-cyanide test. His reagent consists of a solution of corrosive sublimate, tartaric acid, and sugar, in distilled water, made as follows (*Wien. Klin. Wochenschr.*):

Mercury bi-Chloride.....	2 parts.
Tartar Acid.....	1 part.
Distilled Water.....	50 parts.
Sugar.....	5 parts.

As for the method of using it, a test tube is filled one-third or half way with the suspected

urine, previously mixed with a little concentrated acetic acid and filtered; then, with a pipette, the test-solution is slowly trickled down the side of the test tube, drop by drop, so that the two fluids do not commingle, but form two layers. Now, if albumin be present, a sharply defined whitish ring at once forms at the junction of the two layers of fluid. This ring—it is claimed—will also appear immediately and distinctly in urine in which the potassium-ferro-cyanide test scarcely gives any distinctly result. Even with very small proportions of albumin, not at all detectable by means of the potassium-ferro-cyanide test, the characteristic ring forms after one minute, at the longest. Violent moving of the test-tube is to be avoided, in order that a commingling of the fluids do not take place, whereby the distinctness of the reaction would be influenced. Mucin, which gives the same reaction with this test-solution, is precipitated, by the addition of the concentrated acetic acid before filtering the urine, and consequently does not impair the reliability of the test.

As one great advantage of this method, it is claimed that urine very rich in bacteria need not at first be subjected to the tedious process of clarification before being tested, as the ring, in case albumin be present, will be clearly separated from the cloudy urine below it.

By actual experiment it was proved that the corrosive-sublimate-and-tartaric-acid solution yet distinctly demonstrates the presence of albumin when contained in urine in the proportion of 1 to *more than* 50,000; while the *limit* of sensitiveness of the potassium-ferro-cyanide test is fixed at 50,000.

ZINC CHLORIDE in solution (1 : 1000 alcoholized water) has been lauded by Dr. COMBY in *thrush*,—the tongue being wiped with the solution.

STRONG HOT COFFEE, without seasoning,—in those cases of labor where there is *uterine inertia*,—is reported as increasing the pains actively.

BUBO,—SUPPURATING.

Dr. A. CAVAZZANI, of Venice, lauds (*La Sem. Méd.*) the following powder in wounds resulting from the incision of suppurating buboe

Iodoform..... 3 1vss [18 gm.].
Salicylic Acid..... } of each, 3 11 [8 “].
Bismuth sub-Nitrate..... }
Powdered Camphor..... 3 ss [2 “].
Externally !

This powder is described as possessed of energetic antiseptic properties; when applied to a recent wound, it provokes a slight painful sensation of short duration. The advantages claimed for it over other powders employed in the treatment of incised buboes, particularly over iodoform alone, are as follows :

- 1.—It prevents chancrous infection of the wound, and the shrinking of the edges of the same,—which is a quite frequent accident with pure iodoform and one which greatly retards cicatrization.
- 2.—It rapidly deterges the wound, beneficially influences and almost completely suppresses suppuration, which is replaced by a simple serous secretion.
- 3.—Under its influence, the inflamed and tumefied glands rapidly diminish in size, granulations form in abundance, and retraction of the tissues results, in consequence of which the edges of the wound become approximated, whereby, again, cicatrization is considerably hastened.

The author claims that the above described powder has but two drawbacks, and those of little moment: in patients with irritable skins, it is apt to produce small excoriations around the wound, and the granulations acquire, under its influence, a tendency to bleed easily. To obviate the former, it is recommended to apply some inert pomade to the edges of the wound; to do away with the latter inconvenience, it is advised to replace the powder in question every five or six days by iodole, which is to be continued for a day or two, when the original powder is again used.

GATHERED FORMULAS.

19.—**Picrotoxin in Epilepsy.**—[HUCHARD—*Revue Générale de Clinique et de Thérapeutique.*]

—MIXTURE.—

Picrotoxin. 0.03 gramme [$\frac{1}{2}$ grain].
 Alcohol. 10 grammes [3 fl. drs.].
 Distilled Water.. enough to make 120 “ [4 fl. oz.].
 Half a teaspoonful 3 times daily, before meals.

20 and 21.—**Benzoyl-Guaiacol (Benzosol) in Phthisis.**—[*Pharmazeutische Zeitung.*]

—PILLS.—

Benzoyl-Guaiacol. 9.2 grammes [$2\frac{1}{3}$ drams].
 Powdered Tragacanth. 0.5 “ [8 grains].
 Syrup. a sufficient quantity.
 Divide into 50 pills!—One 3-4-5 times daily.

[Each pill represents 0.1 gramme [$1\frac{1}{2}$ minims] of Guaiacol].

—MIXTURE.—

Benzoyl-Guaiacol. 9.2 grammes [$2\frac{1}{3}$ drams].
 Cod-liver Oil. 90.8 “ [$3\frac{1}{8}$ fl. oz.].
 Half a teaspoonful 3-4 times daily.—[Each dose represents 0.1 gramme [$1\frac{1}{2}$ minims] of Guaiacol.]

22.—**Ethylene Bromide in Epilepsy.**—[J. DONATH—*Wiener Medizinische Presse.*]

—CAPSULES.—

Ethylene Bromide. 3 drops.
 Sweet-almond Oil. 6 “
 2-4 such capsules 2-3 times daily.

23.—**Phenocoll Hydrochlorate as an Antipyretic.**
[HERTEL—*Deut. Med. Woch.*]

—POWDERS.—

Phenocoll Hydrochlorate. 1 gramme [15 grains].
 5 such powders daily.

24.—**Europhen in Ulcus cruris, Burns, etc.**
[J. J. EICHHOFF—*Therap. Monatsh.*]

—OINTMENT.—

Europhen. 2 grammes [30 grains].
 Olive Oil. 10 “ [$2\frac{3}{4}$ fl. drs.].
 Lanolin... enough to make 100 “ [$3\frac{3}{8}$ ounces].
 Externally!

25.—**Euphorin (Phenyl-urethane) in Habitual Hemicrania.**—[ADLER—*Wien. Med. Woch.*]

—WAFERS.—

Euphorin. 4 grammes [1 dram].
 Dispense in 10 wafers!—3-5 daily.

26.—**Quinine Sulphate in Tachycardia.**—[M. H. HUCHARD—*Sem. Méd.*]

—PILLS.—

Quinine Sulphate }
 Ergot Extract (Ph. G. II.) } of each.. 3 grammes [45 grains].
 Nux vomica Extract. 0.06 gramme [1 grain].
 Divide into 24 pills!—Two pills, 2 or 3 times daily, for five days.

[The use of these pills—particularly serviceable in cases of Tachycardia associated with *diminished arterial pressure*—should be followed by the administration of 10-20 drops of Pearson's Arsenical Solution daily, for 6- week

VETERINARY.

27.—**Treatment of Diarrhea in Cows.**—[FRÖHNER—*Clin. Veter.*]

—MIXTURE.—

Lactic Acid. 10 grammes [$2\frac{1}{2}$ fl. drs.].
 Molasses. 200 “ [6 fl. oz.].
 Infus. Chamomile (3:100) 1000 “ [about 1 qt.].
 The whole to be given in two days.

28.—**Santonin for Ascarides in Dogs.**—[THE SAME.]

—MIXTURE.—

Santonin. 0.3 gramme [5 grains].
 Castor Oil. 30 grammes [1 fl. oz.].
 Tablespoonful daily, with milk or meat.—Shake well before using.

29.—**Treatment of Typhoid in Horses.**—[WILHELM AND NOAK—*ibid.*]

—ELECTUARY.—

Quinine Sulphate. 4 grammes [1 dram].
 Salicylic Acid. 10 “ [$2\frac{1}{2}$ drs.].
 Powdered Valerian }
 “ Althea } of each. 100 “ [$3\frac{3}{8}$ oz.].
 In one dose, daily.

30.—**Areca Nuts in Tenia of Dogs.**—[THE SAME.]

—PILLS.—

Powdered Areca Nuts. 8 grammes [2 drams].
 Mutton-suet. a sufficient quantity.
 Divide into 8 pills!—At once, or in two doses at intervals of 3 hours.

HYDRASTININE HYDROCHLORATE has been highly lauded by E. FALK in *congestive dysmenorrhea*.

VALERIANIC ETHER is prescribed by Dr. J. D. CHRISTMAN in doses of 2 drops (in pearls of one drop each) in *asthma, spasmodic dysmenorrhea*, and other spasmodic states.

OPIUM TINCTURE, 12-15 drops at bed-time, will—it is claimed—almost invariably abort an *acute rhinitis*, or "cold," if taken at an early stage of the affection; if taken later, it will greatly lessen the severity of the attack and shorten its course.

HOT-WATER FOMENTATIONS are recommended by Prof. KEEN as the best means of treating *conjunctivitis*.

ICHTHYOL is regarded by Dr. KEEN as one of the best *sorbefacients*. It should be used with lanolin, which is absorbed better than vegetable oils.

HOT ALCOHOL is recommended by Prof. HARE as a rapidly acting stimulant in *fainting*. The hot alcohol acts much more quickly than cold, because the latter, before it can be absorbed, must be heated up to the temperature of the body.

EDITOR'S NOTES.

OUR INSTITUTIONS.

The *Cartwright Lectures* of the ALUMNI ASSOCIATION OF THE COLLEGE OF PHYSICIANS AND SURGEONS for 1892, were delivered at the New York Academy of Medicine by Professor HENRY F. OSBORN of Columbia College.

SUBJECT: Present Problems in Evolution and Heredity.—*Lecture I*: The Contemporary Evolution of Man. *Lecture II*: The difficulties in the Hereditary Theory. *Lecture III*: Recent Studies upon the Germ Cells.

THE ASSOCIATIONS.

MEDICAL ASSOCIATION OF GEORGIA.

The *Forty-third Annual Session* will meet in Columbus, Ga., April 20th, 21st, and 22nd.

The officers are:—*President*, G. W. Mulligan, M.D., of Washington, Ga.; *Vice-Presidents*, James M. Hull, M.D., of Augusta, Mark H. O'Daniel, M.D., of Macon; *Treasurer*, E. C. Goodrich, M.D., of Augusta; *Secretary*, Dan H. Howell, M.D., of Atlanta, Ga.

NEW BOOKS.

A TEXT BOOK OF PHYSIOLOGICAL AND PATHOLOGICAL CHEMISTRY. In twenty-one lectures. For Physicians and Surgeons. By Prof. G. BUNGE. Translated by L. C. WOOLDRIDGE, M.D., D. Sc., London. Kegan, Paul, Trench, Trübner & Co., 1890.

This valuable contribution to medical literature consisting of a series of twenty-one lectures by Prof. BUNGE of Basle, has been carefully translated into English by the late Dr. WOOLDRIDGE.

The author has presented this most intricate subject in an easily readable form from the beginning to the end. The style is simple and clear and the subjects are generally made plain.

The author first describes the twelve fundamental constituents of the body, and then traces them in their circulation throughout the system.

After dealing with the conservation of energy and its transmutation in force, he then discusses human nutrition in a general manner and classifies the food-stuffs.

After thoroughly disposing of the chemistry and utility to the animal economy of the essential food-stuffs, the author next takes up the subsidiary articles of diet.

That portion of this section which is devoted to the study of alcohol, is one of the most rational and thoroughly practical presentations of this much mooted question that has appeared in recent years. It is worthy of the careful consideration of every practicing physician, as it deals with the subject in a purely scientific manner.

Just at the present time, when a strong effort is being made by some of the weekly papers to get the medical profession committed to the statement, that the moderate use of alcohol is beneficial to humanity at large, some of the passages may be cited with advantage.

The weight of the author's argument tends to establish beyond a question of doubt, that alcohol is toxic in its nature, and acts chiefly by paralyzing the nervous system. He says: "A paralytic symptom, which is erroneously regarded as one of stimulation, is found in the deadening of the sense of fatigue. There is a strong belief that alcohol gives new strength and energy after fatigue has set in. The sensation of fatigue is one of the safety-valves of our machine. To stifle the feeling of fatigue in order to be able to work on, is like forcibly closing the safety-valve so that the boiler may be over-heated.

"The belief that alcohol gives strength to the weary, is particularly dangerous for the class of people which contains the most numerous numbers. The poor people, whose income is already insufficient to procure suitable sustenance, are misled by this prejudice into spending a very considerable part of their earnings in alcoholic drinks instead of purchasing good and palatable food, which alone can give them strength for their hard work.

"That mental exertions of all kinds are better undergone without alcohol is generally admitted by most people who have made the trial. Alcohol then, makes no one stronger; it only deadens the feeling of fatigue."

The author further remarks that "We must, however, strictly discriminate between the use of alcohol as a luxury and an article of diet, and its use as a medicine, etc."

This whole chapter, in the main, is good and should be carefully read by all who have the advancement of humanity at heart, for it clearly elucidates the exact utility of alcohol.

Having carefully considered these preliminary points the author takes up the physiology and pathology of digestion, in the order of its occurrence. The whole subject is practically detailed both as to its chemistry and the general physiological phenomena of life. The composition and functional activity of the secretions are fully explained. After this there follows a clear description of assimilation, and of the excretory fluids of the body.

Taking the book all in all, it is a remarkably clear and simple exposition of this most complex but important subject. While the book contains many points which will be changed or modified with the rapid advances in this particular department of science, the book, nevertheless, furnishes a mass of foundation material, which has been for a long time sought after by the general practitioner, knowledge which ought to be in the possession of every medical man.

The book as a whole, is highly recommended as capable of filling a large gap in our medical literature, long and sadly behind, as compared with many other departments.

A DICTIONARY OF TREATMENT, OR THERAPEUTIC INDEX, including Medical and Surgical Therapeutics. By WILLIAM WHITLA, M.D., Professor of Materia Medica and Therapeutics in the Queen's College, Belfast. Revised and adapted to the Pharmacopœia of the United States.—Lea Brothers & Co., Philadelphia, 1892. 8vo, 917 pages. Cloth, \$4.

In this volume the author has accomplished for *Materia Medica and Therapeutics*, what Quain's Medical Dictionary has for the Theory and Practice of Medicine.

In this Dictionary of Treatment both medical and surgical therapeutics are included within its 900 pages, and the remedial agents that may be used in each disease are clearly and concisely treated. The arrangement is alphabetical, thus enabling instant reference to all subjects.

The object of the author has been to produce a complete digest of the present therapeutic measures as used in combating disease. He has described both medical and non-medical treatment, including electricity, massage, baths, surgical procedure, etc., etc.

The author's wide reputation as a writer, teacher, and practitioner, has put him in possession of a large fund of knowledge, all of which he has used to advantage in this valuable compilation.

We are, however, disappointed to find so little attention given to that large number of cases classed as intestinal and hepatic indigestion. The disturbances of the hepatic functions are treated very lightly or completely ignored.

These two divisions of medicine and their therapeutics are attracting a great deal of attention at the present time, and this omission to treat them fully will be disappointing to the many readers of this volume.

The article headed *Dyspepsia* is well handled, but the mass of treatment applies to the stomach and not to the intestines and liver.

We are glad to see the author condemn the use of digitalis in pneumonia in these words: "The writer gave the drug a fair trial some years ago, and resolved never to depend upon it again, as it invariably proved a failure when used by itself." But its condemnation in this instance, is hardly in keeping with the praise given to digitalis in the section which treats of valvular lesions of the heart. When the author says, "Digitalis at present stands, and probably for all time will stand, as the most reliable member of the group of cardiac and vascular tonics," if we assume that none of the cardiac group are to be relied upon when used alone, then both statements are in harmony and do not conflict. This assumption is undoubtedly the correct stand to take, but it evidently is not the intention of the author to have this construction applied.

A number of antagonistic statements are found of similar nature.

Another feature, which will be found valuable to the general practitioner, is the abundance of formulæ scattered through the book, many of which are admirably constructed and can be used to good advantage.

The stand taken for early treatment in syphilis, instead of waiting until the patient is supersaturated with the poison and the evidence of the disease is blooming forth at every point, is good and sound therapeutics.

The use of the minimum quantity of medicine and careful attention to diet in the management of syphilis is sensible.

While this volume, like every such gigantic compilation, must have its faults and its deficiencies, the major part is exceptionally good.

It is, in fact, a concise compendium of therapeutics, and this volume should occupy a leading position on the office table of every physician and surgeon.

COLLECTED CONTRIBUTIONS ON DIGESTION AND DIET. By SIR WILLIAM ROBERTS, M.D., F.R.S. Lea Brothers and Co., Phila., 1891.

This little volume is composed of several lectures and papers on very broad subjects, yet all having for their final aim a consideration of two general and important topics—digestion and diet.

He has attempted more than most writers in so small a volume, in that he deals with some of the more abstract facts of digestion. Many would judge him harshly for presenting to this practical age such a composition, but those same individuals are members of that rather general class who signally fail in their attempts to correct functional derangement of the organs which prepare our food for assimilation. The more one understands of the why and wherefore of a natural action, and considers the plausible theories for those as yet unexplained processes, the better can they combat deleterious influences. The author, therefore, risks being considered theoretical that he may deal with these problems.

In considering the subject-matter of the book, we notice the following which would seem worthy of special notice.

The author coincides with BERNARD and some of our own investigators in believing that there exists a true "inversive ferment," which has for its action the changing of our commercial cane sugar into dextrose and levulose.

Again, he believes the acid of the gastric juice to be a number of organic acids set free from the articles of food which are undergoing digestion. It would seem that further investigation were needed to not only prove that our old friend hydrochloric acid should be considered unreliable, but also the nature of the new substances. He believes, however, that whatever the cause of the acidity of the contents of the stomach during digestion, it had a marked tendency to maintain a normal average. It would be well to remember this point when one is tempted to correct a hyper-acidity or alkalinity.

The chapter devoted to the estimation of the amyolytic and proteolytic activity of pancreatic extracts is indeed worthy of careful perusal.

The author is certainly original in his introduction on diet. After speaking of the close analogy existing between the digestion of animals and man he says: "and yet it would seem as if the functions of digestion were less perfectly adjusted and its equilibrium more easily disturbed in man than the lower animals." The causes he attributes to sympathies of the nervous system and "the extraordinary complexities which civilized man has introduced into his dietary." In another place he says: "He—man—has departed widely, and is departing, more and more, in regard to his food from the simplicity and uniformity of his primitive nature." This we most heartily accept as a statement founded on the daily experience of every physician and a condition which he strives hard to ameliorate.

Let us see how the author endeavors to consider dietetics. "The science of dietetics must, I *apprehend*, be mainly based and built upon an observation and a study of the practices and customs of mankind in regard to their food, rather than upon any *a priori* data supplied by physiology."

Can the physiologist, nay the scientist *comprehend*, this decidedly novel way of challenging the utility of all his labors in this direction? It is certainly hard to see how such grounds are compatible with what are considered, by the best faculties we have which are capable of judging, as indisputable facts. We can hardly pass such a statement without rather free criticism of the author's belief in the fundamental principles of physiology.

Nor do we concede, as he thinks, that the British races and their descendants throughout the world, are on any grounds "fitted to supply us with a body of dietetic customs which may be regarded as a beneficial model," at least not while uric-acid, calculi and conditions are so common among them.

The remainder of the book is very interesting, considering among other thing "idiosyncrasies," "effects of diet on development and nutrition," "alcoholic beverages," "civilized man is not denaturalized," "eulogium of the potato," etc.

The concluding chapters on the preparation of food for invalids, contain many good points which are of value to every practitioner who has this class to deal with.

J. W.

BOOKS RECEIVED.

A CLINICAL TEXT BOOK OF MEDICAL DIAGNOSIS FOR PHYSICIANS AND STUDENTS; Based on the most recent methods of Examination. By OSWALD VIERORDT, M.D.; Translated by FRANCIS H. STUART, A.M., M.D.—W. B. Saunders, Phila., 1891. Price; cloth \$4.00, sheep, \$5.00.

COMING BOOKS.

W. B. SAUNDERS, Publisher, of Philadelphia, has in preparation: *An American Text Book of Surgery*. By Professors KEEN, WHITE, BURNETT, CONNOR, DENNIS, PARK VAUCREED, PILCHER, SENN, SHEPARD, STIMSON, THOMSON and WARREN;

An American Text-book of the Theory and Practice of Medicine according to American Teachers. Edited by WILLIAM PEPPER, M.D., LL.D., Provost of the University of Pennsylvania. The Associate Authors: Professors BILLINGS, DELAFIELD, FITZHOLLAND, JANEWAY, LYMAN, OSLER, THOMSON, WELCH, WHITTAKER, WILSON, and WOOD.

OBITUARY.

DR. THOMAS STERRY HUNT, one of the leading chemists and geologists of the country, at New York, Feb. 11th, of mitral disease of the heart. Dr. H. was born in Norwich, Conn., September 5, 1826. He was educated for the medical profession, but his love for chemistry and mineralogy led him to become an assistant to Professor Benjamin Silliman, sr., in Yale College. In 1847 he was appointed chemist and mineralogist to the Geological Survey of Canada, which position he held until he resigned it in 1872. He was one of the organizers of the Laval University, at Quebec, and was professor of chemistry there from 1856 to 1862. For four years he was lecturer in McGill University, Montreal, and was professor of geology at the Massachusetts Institute of Technology from 1872 to 1878. He had the following degrees: M. A., Harvard; Sc. D., Laval; LL. D., McGill, and LL. D., Cambridge, England. He had been president of the American Association for the Advancement of Science, and of the American Institute of Mining Engineers, and was twice president of the American Chemical Society. He was the first president by election of the Royal Society of Canada. In 1878 he retired from public professional life. Dr. HUNT was the author of many works, among which are "A New Basis for Chemistry," "Systematic Mineralogy," and "Chemical and Geological Essays."

DR. FRANCIS JOHNSTON METCALFE, aged 41, at Florence, Italy, Feb. 7th; of pneumonia, brought on by "la grippe." He was the son of Dr. John T. Metcalfe, professor emeritus of clinical medicine at the College of Physicians and Surgeons, New York. Dr. M. was born in New York, and graduated from the College of Physicians and Surgeons, 1865. After graduation he spent about eighteen months at Bellevue Hospital. He then went abroad and was married in 1868 to a lady of Florence. Returned to New York, he practiced until 1876, when he returned to Florence, where he likewise engaged in practice.

Dr. JOHN WITT RANDALL, a well-known scientist, at Boston, Mass., Jan. 27. He was the son of Dr. John and Elizabeth Randall. He was born in Boston on November 6, 1813. He was graduated at Harvard in 1834, and at the Harvard Medical School in 1839. He devoted himself especially to entomology. He was appointed professor of zoology in the department of Invertebrate Animals in the South Sea (Wilkes) Exploring Expedition, but the delays that arose led him to throw up the appointment.

DR. JOHN GAUL ROSMAN, aged 57, was found dead in his office in Brooklyn, Jan. 25th. He was the son of Dr. Robert Rosman, who first introduced the practice of homeopathy in Brooklyn. Dr. J. G. Rosman was born in Hudson, N. Y., 1835. He was educated at the College of Physicians and Surgeons in New York and at the School of Homeopathy in Philadelphia.

DR. WESLEY NEWCOMB, aged 84, at Ithaca, N. Y., Jan. 26; of "la grippe." He was one of the leading conchologists of the world. He made the famous collection of shells purchased for Cornell University, and he passed twenty-three years in its arrangement and the classification of its increase.

DR. LYMAN HALL died at Champaign, Ill., Feb. 11th, aged seventy-four. He was one of the organizers of the Society of Surviving Surgeons of the Civil War.

DR. HARMON W. SHOVE, aged 65, at Woodbury, Jan. 25th. During our Civil War he had been a surgeon in the Navy.

RECENT DEATHS OF MEDICAL MEN.

UNITED STATES.

SAMUEL H. CASE, aged eighty-three; JOHN W. DOWLING, a well-known homeopathic physician of New York; CHARLES N. MARTIN, Medical Director of the United States Navy. At Front Lake, Col., CHARLES M. MCLAURIE, late Assistant-Surgeon to the 156th New York Volunteers; DR. DAVID FLIESCHMAN, a Specialist of Laryngology and Rhinology, at Albany, N. Y., Jan. 30th, of "la grippe," followed by pleurisy and tubercular meningitis. Dr. F. graduated with prizes and honors from Yale College in 1879, from the Albany Medical College in 1881, and then took a course in the New York Post-Graduate School and Hospital.

ABROAD.

JOHN WOOD, F. R. S.; DIMITRE SERGIN of Bucharest, a widely known writer on diseases of children; BERKLEY HILL of London, Vice-President of the Royal College of Surgeons; PROF. QUATREFAGES, aged eighty-four.

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HIGH PROBABILITIES.

With the beginning of the second quarter of the year, with MERCK'S BULLETIN in its new and enlarged form, it seems but justice to the very large number of professional men who have responded to the support of this journal,—and coming as they do from all parts of the world,—to acknowledge this hearty recognition of our publication in its effort to advance the science of medicine.

By the constant inpouring of subscriptions alone, this journal feels assured that the advanced lines of thought, the vigorous and impartial discussion of important scientific subjects, together with the abundant and complete information which has been and will be presented relative to the new remedies,—all have touched a long-felt want.

In starting this undertaking, we were fully alive to the fact that the list of Medical Journals presented to the profession was perhaps already too large; but we were equally confident that there was still an abundance of room for a

journal that constantly keeps the higher planes of pure scientific medicine boldly at the front.

A journal by the aid of which the science of medicine is constantly being made more accurately practical at the bed-side, and which continually furnishes to the busy practitioner new and practicable methods of therapeutics by which he can more intelligently and successfully combat diseased processes,—while strictly *discountenancing* with equal severity both the empiricism of ignorance, and the quackery of speculation, in its advertising as well as reading columns,—will still find a liberal allowance of room among the higher rounds of the ladder.

With the profession everywhere pushing us forward so strongly with their energetic support, every inducement that could be conceived is presented, to stimulate the stupendous undertaking of bringing MERCK'S BULLETIN into the very fore-front of all Medical Journals, until it can justly claim the title of FIRST.

COMPOUND ANTISEPTICS.

The great importance associated with antiseptics in surgery and in the treatment of disease in general, renders every advance in the discovery of new agents having this property, and in the perfection of antiseptic remedies in general, of universal interest.

From year to year new substances have been discovered, and each, in turn, has been claimed to be *the antiseptic par excellence*, and possessing all the powers of those which preceded it, and with some new advantages greater than those of its much-lauded antecedents.

The rise and fall of one antiseptic after another has led some good men to doubt the intrinsic value of all medicinal antiseptics, and to claim that cleanliness and the free use of sterilized water are equal to them all, with none of the disadvantages.

While all this may in part be true, there is no doubt that the physician and surgeon has at his command a host of medicinal or chemical elements which have varying degrees of microbicide power.

Attention therefore is called to the recently recorded utility of *compounding* the various antiseptics, as described by Drs. DE CHRISTMAS and RUSPAUT in their paper read before the Biological Society in Paris.

These gentlemen have shown that, when a number of antiseptics are associated together in one and the same solution, the microbicide power of the latter is greater than the sum of the antisepticities of the solutions of each of the antiseptics acting separately.

In consideration of the general importance of this entire line of investigation, the attention of our readers is especially directed to some of the formulated com-

pounds having this increased activity, and given in this Number under "PRACTICAL HINTS," with a more detailed account of their preparation and advantages.

It is to be hoped that this entire line of investigation will be still further followed by others, until the maximum of antiseptic perfection has been undisputably established.

OXYGEN IN THERAPY.

The therapeutic utility of oxygen gas has often been called into question: Much has been claimed for it as a remedial agent in the treatment of pulmonary affections.

Yet a concise statement as to how oxygen, over and above that contained in the ordinary atmosphere, acts upon the respiratory function, is not easily found.

The question is repeatedly asked: What is the true value of oxygen-gas inhalations? How is the physiological *modus operandi* of such inhalations to be explained, and what is the true therapeutic action and value of the periodic inhalation of oxygen?

A brief review of a few of the facts concerning the physiological phenomena of respiration may help to throw some practical light upon the true value of, and therapeutic possibilities attainable by, the inhalation of this gas.

Commonly it is taught that the air entering the respiratory passages, so far down as the second or third bifurcation of the bronchi, is in a state of tidal motion, rising and falling with each respiratory act.

From this point down to and on into the air spaces and vesicles, the air is spoken-of as being stationary, that is not moving in a tidal manner.

The method of gaseous interchange in the composition of this so-called stationary air is one of the important factors to be settled in the study of respiration, and in the investigation of the therapy of all respiratory remedies and affections.

It has generally been taught that the interchange of the composition of the air in the deeper passages of the bronchial tubes and in the air sacs was exclusively governed by the law of the diffusion of gases. That this law of diffusion is a factor in the respiratory act cannot be denied; at the same time it is a comparatively slow process, and there is considerable evidence at hand to show that the diffusion law will not account for all the phenomena associated with respiration.

The powerful action of the ciliated epithelium is usually disregarded in the study of this respiratory problem; while there is an abundance of satisfactory evidence to show that this ciliar action of the epithelial cells lining the bronchial tubes is a mighty factor in this vital process.

For instance, when the bronchial tubes become dried or coated with thick and tenacious mucus and the ciliar action of the epithelium is suspended, the only method by which the gases in the air spaces can be exchanged is by the phenomenon known as diffusion. The dyspnoea at once becomes extreme. So soon as the bronchial tubes again become moist or natural and the cilia of the epithelial cells can again set the currents of air in motion, the dyspnoea abruptly and completely disappears.

This simple every-day fact, alone, shows that the ciliated epithelial cells are a major factor in establishing currents of air within the air passages, by which an exchange of gases within that portion of the respira-

tory tract containing the so-called stationary air, can be rapidly and fully effected.

The cilia of the epithelial cells lining the bronchial tubes always move from within outward, and these cells line the respiratory tract from the mouth of the air sac to the chink of the glottis.

It is also a well-known pathological fact that inorganic and solid particles rarely if ever reach the true vesicular tissue, but always become lodged in the walls of the bronchi or are expelled from the air tubes with the sputum.

From these facts it is clearly shown that the cilia of the epithelium are constantly keeping up a peripheral current of air from within outward in the lumen of the bronchial tubes, while in the very centre of the lumen there is a constant central stream or column of air passing down to reach the interior or cavity of the air sac. In this way a constant double current of air is continually maintained within the bronchial tubes.

Viewed in this light, the bronchial tubes become little else in their mechanical action than true filters for the purification of the air introduced into the deeper recesses of the lungs. These minute bronchi, lined as they are by this coating of ciliated epithelium, are continually acting upon the principle of a filter. The cilia are constantly pushing the solid particles and heavier gases forward, upward and outward along the periphery of the lumen of the bronchial tubes. Owing to the minute diameter of the ultimate bronchial tubes and the elasticity of their walls, this action of the cilia has an effect upon the contents of the air sacs like that of a suction pump, and tends to rarefy the air within this cavity,—producing as it were a vacuum in the air vesicle.

This decrease of atmospheric pressure within the air sacs is given by all physiologists as the condition which causes the carbon di-oxide to leave its combination in the blood and pass out into the cavity of the air sac. After gaining access to the air space, the CO_2 is constantly being pumped into the bronchial tube to make room for that which has to be continually discharged from the blood. Once in the larger bronchial tube, by the continued action of the ciliated epithelium it is carried up to the point where it becomes an integral part of the tidal air, and is then expelled into the outer world.

As the discharge of carbon di-oxide into this vacuum space in the air sacs does not occur so rapidly as the vacuum is produced, there is a constant stream of purified air, composed of nitrogen and oxygen, flowing into the air vesicles from the bronchial tube, in obedience to the inspiratory pressure from above. The constantly varying pressure exerted upon this central stream by the tidal air above, causes the air to rush into the air sac with greater rapidity during inspiration and less swiftly during expiration, which explains the difference in length and pitch noticed between the inspiratory and expiratory sounds. It also explains the inability of the auscultator to determine positively when the one act ends and the other begins.

The oxygen of the purified air that has finally reached the cavity of the air sac is rapidly taken up by the de-oxidized hemoglobin in the blood flowing through the capillary vessels in the vesicular walls. In this manner a complete explanation is afforded for the changes and interchanges between the air in the air sacs and in the blood stream.

Physiology teaches, that with each inspiratory act 500 cc. of air are drawn into the air passages. Of this amount 100 cc. is oxygen. For each inspiration the maximum amount of oxygen that can be taken up by normal blood when it contains 5,000,000 red corpuscles to the cubic millimetre is only 20 cc. of oxygen. From these two statements it is perfectly plain that the lungs are supplied by each respiratory act with 80 cc. more oxygen than the blood can possibly utilize. If now the number of red corpuscles is reduced to 4,000,000 or to 3,000,000, or the percentage of hemoglobin is below the normal standard, it is difficult to see how the introduction of a still larger percentage of oxygen *per se* can in any manner influence beneficially the physiological economy.

Purification of the air and a decrease in the quantity of work to be accomplished by the ciliated epithelial cells in eliminating foreign elements, will naturally diminish the amount of work to be accomplished by the lungs and by the system in general. In so far as this increases the freedom of the respiratory movements and increases the volume of blood passing through the pulmonary tissue in a given space of time, in just so much will a diseased condition of the lungs be benefited by the more perfect oxidation and nutrition established throughout the body.

Nitrogen gas being lighter than the oxygen, it is possible *in some cases*, in which from disease or otherwise, the ciliar action of the epithelium is far below the normal in energy, that the nitrogen gas enters the air sacs somewhat more rapidly than the oxygen and thus in a measure prevents the entrance of the requisite

amount of oxygen to sustain the necessary supply for perfect body oxidation. Under these circumstances it is clear that a reduction in the amount of nitrogen in the inhaled air and an increase in the percentage of oxygen would cause a larger quantity of the oxygen gas to reach the air sacs, and finally to gain access to the hemoglobin contained in the blood stream.

But the above-mentioned pathologic or abnormal condition (the ciliary asthenia or fatigue), would have to cause a reduction of 80% and more of the total amount of oxygen contained in the air within the lungs before an effective deficiency in oxygen could be developed. For unless this enormous reduction have been effected, there is still more oxygen at hand in the air tubes than the blood can possibly utilize.

Lack of stimulation of the epithelial cilia and the comparative lightness of the nitrogen are, then, probably the causes of the incomplete supply of oxygen to the body and of the apparently de-oxygenated condition of people living in confined quarters.

Therefore one of the most scientific and logical grounds upon which any therapeutic advantage can be accredited to the inhalation of oxygen gas is found to lie in the simple fact, that it is more irritating, and consequently more stimulating than the normal atmospheric air. Thus oxygen gas stimulates the reflex mechanism of the respiratory and cardiac acts when introduced into the air passages in place of ordinary or vitiated air, and hence respiration and the flow of blood through the lungs will both become more rapid. A given volume of blood presents itself more frequently at the surface of the

vesicular walls to discharge its CO_2 and to absorb the O_2 from the air in the air sac, and in this way more oxygen is drawn into the blood and distributed throughout the system, and general body oxidation is greatly augmented,—not because the lungs were deficient in oxygen gas and that the deficit has been overcome, but rather because the lungs have been mechanically super-exercised and the rapidity of the circulation augmented.

Another method by which the oxygen gas inhalations can be of therapeutical utility is founded in the fact that when inhaling vitiated air the blood is not capable of absorbing its full quota of oxygen.

By increasing the percentage of oxygen in the upper air passage, it becomes a more active agent than oxygen as commonly found in the atmosphere. Thus, by having a greater diffusive power and ability to displace impurities, a much larger percentage of oxygen reaches the ultimate air sacs and the blood is enabled to take up the maximum quantity of oxygen, which otherwise could not be effected.

Both conditions hold true in going from the city to the country or from an impure and moist atmosphere to a pure, dry, and exhilarating air.

The percentage volume of oxygen however is not materially enhanced above the normal standard within the air sacs, but the reflex stimulation is greatly increased, the rapidity of the respiratory act is augmented, and the volume of the circulation through the pulmonary organs greatly increased; together with which the higher diffusive power of the free oxygen introduced, tends to keep up the normal percentage of oxygen in the air sacs. This

necessarily results in a more rapid interchange between the gases in the air spaces, and also between the air contained in the pulmonary vesicles and the blood within the vascular walls. General body oxidation and nutrition must be improved, which is positively proved by the uric acid in the urine giving place to the more complete product urea.

In case a patient is physically unable to secure this change from bad air to pure or from the thickly populated and confined city quarters to the open country or mountainous districts, and thus obtain

the natural stimulus of the pure air and therewith associated physical exercise,—oxygen-gas inhalations may possibly be of service as an artificial substitute. The good results are therefore secured not solely by increasing the amount of oxygen contained in the air passages, but likewise by the power of the oxygen to stimulate the reflex nervous mechanism of the lungs and heart and thus quicken and deepen the respiratory act and enhance the volume of the interchange between the carbonic acid and the oxygen within the blood stream.

MEDICAL REPORTS

TO "MERCK'S BULLETIN."

THE VALUE OF PROTEIDS IN CERTAIN FORMS OF NERVOUS DISEASE.

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The wonderful activity that is now being manifested in the realm of chemical physiology and pathology, is making itself apparent in the revision and even abandonment of many old theories, substituting in their place the results derived from a careful study of the metabolic changes occurring in the tissues. The pathology of the condition known as lithæmia is receiving serious consideration at the hands of many able investigators, and,—while there is still a great diversity of opinion concerning it,—as to its pernicious effects upon the nervous system, medical men are entirely in accord.

LITHÆMIA.

For the group of associated symptoms: aching pains in the limbs, and lassitude, burning or scalding patches on various parts of the body, especially on the palms or soles, neuralgia, severe cramps in the legs, abdomen, etc., headache, vertigo, temporary dimness of sight, double vision, convulsions, paralysis, mania,

noises in the ears, probably due to lithæmic pharyngitis, insomnia, irritability of temper and depression of spirits, cerebral symptoms and the typhoid state, along with the symptoms arising from derangement of the digestive, circulative, respiratory and urinary organs, and with an abnormal condition of the skin,—the name "Lithæmia" was first suggested by MURCHISON. More recent writers have added to these symptoms strabismus, great sensitiveness to odors, hemiparæsthesia, vaso-motor disturbances, certain forms of tremor, lancinating pains, at times so severe as to demand anodynes, febrile attacks accompanied by intense restlessness, and certain functional and organic nervous diseases, as melancholia, hysteria, neurasthenia, epilepsy, disseminated sclerosis, and poliomyelitis. I have observed surface tenderness of the head, a symptom whose presence has been denied by eminent neurologists. FLINT had previously described the same clinical picture under the head of uricæmia, while still more recently VON JAKSCH designates it as uricacidæmia; the latter name receives also the endorsement of Dr. HAIG. It has also been called lithuria, and lithiasis, and uric-acid diathesis. Dr.

LANDON CARTER GRAY* suggests the name of lithoidosis, "meaning a lithic-acid-like diathesis as more comprehensive and less dogmatic, and more permissive of future developments."

This condition of lithæmia so-called, is generally regarded as being due to uric acid in the blood. Uric acid, according to GARROD, was "first discovered in urinary calculi and urine by SCHEELÉ in 1776; it was called lithic acid by MORVEAU, but afterwards named uric acid by FOURCROY, by which designation it is commonly known at the present day."

DOES URIC ACID EXIST IN THE BLOOD OR NOT?

The pivotal point around which all discussion of this subject centres is, does uric acid exist in the blood or not? That it does so exist is believed by many eminent physicians. According to GARROD,† "The causes which predispose to gout, independent of those connected with individual peculiarities, are either such as to produce an increased formation of uric acid in the system or lead to its retention in the blood."

"When oxidation is imperfectly performed in the liver," says MURCHISON,‡ "there is a production of insoluble lithic acid and lithates instead of urea, which is the soluble product resulting from the last stage of oxidation of nitrogenous matter."

Dr. HAIG§ agrees with MURCHISON as to the symptoms characteristic of the lithæmic condition, but he differs from him in believing that the liver symptoms are merely secondary, being due to the accumulation of uric acid in the blood and tissues, rather than to its formation.

"Lithæmia," according to ROBERTS,¶ "is only an exaggeration of a normal condition, for traces of uric acid always exist in healthy blood. . . . It is an open question whether uric acid dissolved in the

blood exercises any injurious effects at all. It appears not improbable that uric acid is as innocuous when dissolved in the blood as we know it to be when dissolved in urine."

"Uric acid, like urea, is a normal constituent of urine, and like urea has been found in the blood, in the liver and in the spleen. . . . In various diseases the quantity in the urine is increased and at times, as in gout, uric acid accumulates in the blood, and is deposited in the tissue."*

LANDOIS and STERLING believe that uric acid is formed outside the kidneys. JAKSCH, according to HALLIBURTON, "has recently found that uric acid accumulates in the blood not only in gout but in anæmic conditions, and considers that the cause of its appearance is defective oxidation."

According to HALLIBURTON there are two views as to the situation of uric-acid formation. "One is, that it is formed like urea in the other tissues, especially in the liver and spleen, and is merely excreted by the kidneys; . . . the other view is, that the kidneys constitute not only the seat of excretion but also that of formation of uric-acid. . . . It however appears to me that the facts are mostly in harmony with the first view."

The same author thinks that the recent investigations of SCHRÖDER and MINKOWSKI have definitely settled the matter; but while MINKOWSKI regards the chief seat of uric-acid formation to be the liver, HORBACZEWSKI, on the contrary, believes it to be the spleen.

THE RENAL EPITHELIUM.

Notwithstanding the above citation of eminent authorities, it is my deliberate conviction that uric acid does not exist in the blood as a result of retention, nor is it found there as the result of formation in the liver, spleen, or other tissues. To my mind the important part played by the renal epithelium in the urinary tubules has not been sufficiently considered.

*The Nervous Symptoms of so-called Lithæmia, *New York Medical Journal*, January 23rd, 1886.

† Gout and Rheumatic Gout, Third Ed., Page 275.

‡ Functional Derangements of the Liver, Page 67.

§ Uric Acid in Diseases of the Nervous System. *Brain*, 1891.

¶ Deposition of the Crystalline Urates in the Tissues. *The British Medical Journal*, November 22nd, 1890.

* FOSTER'S Physiology, Page 520.

† Text-Book of Chemical Physiology and Pathology. Page 735.

"There is much evidence," says WILLIAM CADGE,* "to support the belief that the function of the kidneys as regards both urea and uric acid is more important than the mere excretion; that it has the power to form and produce as well as simply eliminate, these nitrogenous constituents out of some antecedents in the blood, and that as the hepatic cell has the power to form bile, so the epithelial cell of the renal tubule by the metabolic activity of its protoplasm has the power to produce some, if not all, of the urea and uric acid found in the urine. It is most probable that the water and saline constituents of the urine are simply eliminated from the blood by osmosis through the blood vessels of the glomeruli, and are therefore influenced as to excess or deficiency by greater or less blood pressure, while the uric acid, urea, pigments, and other constituents are, in part at least, the result of a true secreting power of the renal cells in the tubule."

MORTIMER GRANVILLE believes that the seat of uric-acid formation, after being relegated from the kidney to the liver, spleen, and system "at large," in turn, has at last been brought back again to the kidney cell. "The relation," says KIRKE, "which uric acid and urea bear to each other is however still obscure, but uric acid is said to be a less advanced stage of the oxidation of the products of proteid metabolism. . . . Some experiments seem to show that uric acid is formed in the kidney."

According to Dr. W. H. PORTER, uric acid cannot exist in the blood; "Because, being an acid body of active basicity, it would immediately join with the alkaline compounds and become a urate of some form; consequently if we are to talk of either one being in the blood, it must be the urates. So far as I can learn, not a single physiologist intimates the presence of the urates in the blood, therefore I think we are justified from a chemical and phys-

iological standpoint in asserting that uric acid and the urates do not exist in the blood during life. Further, so far as I am able to ascertain, no one has ever claimed to find uric acid or the urates in the blood as drawn from the living animal, which ought to be easily the case if they existed in that fluid."

"We are sure that it (uric acid) is not in the free state, because it is chemically impossible for uric acid to subsist in the alkaline blood serum without entering into combination with the bases contained in it; but whether that combination be a quadrurate or a biurate or a mixture of the two, or sometimes one, or sometimes the other, we do not know." (ROBERTS).

The belief that uric acid exists in the blood is based upon various tests, of which that of GARROD* is most important.

"The serum of the blood or the fluid of a blister is dried, powdered, extracted with hot alcohol, and the residue digested with boiling water. The watery solution is filtered and concentrated; it gives the murexide test and, after the addition of acetic acid, crystals of uric-acid form, which can be collected and weighed."†

Upon its face this test would appear conclusive, but when we consider the active chemical agents which have been added to the blood serum before any signs of uric acid were evident, it would seem more probable that uric acid had been manufactured artificially, than that it had pre-existed in the blood.

Dr. PORTER believes that "The antecedent of uric acid formed out of the proteid bodies does exist in the blood, and as this substance passes along over the excretory epithelium in the blood stream just behind the cells, the red blood cells give up to the protoplasm constituting the renal epithelium an element of oxygen, which unites with the CHNO compound of the anabolic series which is also drawn into this cell out of the blood, and the two are then

* Uric Acid Diathesis. QUAIN'S Dictionary of Medicine, Part II, Page 1706.

† KIRKE'S Hand-Book of Physiology, Vol. I, Page 372.

* GARROD'S Method of estimating Uric Acid in the Blood or Serous Liquids.

† Text-Book of Chemical Physiology and Pathology, HALL-BURTON, Page 252.

combined and come out upon the other side into the lumen of the uriniferous tubule, as a fully formed katabolin or uric-acid element. If the CHNO elements out of which uric acid can be formed, are not taken up by the renal cells and formed into uric acid, but continue to circulate in the blood, then we have the various symptomatic phenomena which constitute what we call lithæmia and neurasthenia."

It may be asked, if uric acid does not exist in the blood, how shall we account for the deposits of crystalline sodium biurate characteristic of gout, or the similar deposits observed in rheumatism? Dr. PORTER'S* explanation of this condition is as follows: "In gout the by-products, developed out of the incomplete transformation of the proteid bodies, and which ultimately go to form uric acid in the kidneys, are by an abnormal condition of the protoplasmic elements of the cartilages, or in various protoplasmic structures throughout the body, converted into uric acid such as ordinarily occurs in the kidneys. But the uric acid, so soon as it is formed, in these abnormal situations is united with the sodium compounds . . . which results in the development of an acid urate of soda; . . . consequently we find that uric acid or the urates do not circulate in the blood, but rather appear to be deposited locally and then and there to act as foreign bodies, and are treated by the system as extraneous and damaging elements. . . . In rheumatism we have similar deposits, but located in the ligamentous structures, in and around the joints,—the pathological state of the protoplasm develops at a local point lactic acid which is ordinarily formed in the kidneys. The lactic acid now attacks the sodium and calcium phosphates, and the acid lactate of sodium or calcium is formed."

THE LITHÆMIC STATE.

It is the prevailing idea that lithæmia should be limited strictly to those antecedents which

precede or are associated with uric acid only, namely, those of urea, uric acid and creatine; the so-called "katabolins of the anabolic series." The commonly known katabolins are oxalic, lactic and hippuric acids, glucose and derived albumen, the results of destructive or pathological processes. The antecedents out of which these compounds are derived,—and their number is limitless, two hundred having already been discovered, cause great irritation to the nervous system and to the body at large. Now these antecedents of the katabolic series are in every way separate and distinct from those which occur in the anabolic series, and are therefore not included in the received conception of lithæmia, although the antecedents of both series may be present in the circulation at the same time. All the by-products of an abnormal metabolism, be they leucomaines or ptomaines, are classed as katabolins and are thereby excluded from the conception of the lithæmic state. These ptomaines and leucomaines are, however, the prolific source of toxic neurasthenia.

It seems to me that an idea of lithæmia which limits it to a single class of antecedents is too arbitrary. It is the result of autogenous, toxic influences, and in my opinion it would tend toward clinical simplicity to unite all these antecedents, anabolic or katabolic in kind, into a single concept, known as the lithæmic state.

I have found the most common form of neurasthenia to be that which arises from a lithæmic source as above described. I regard simple neurasthenia as of much rarer occurrence than is generally supposed, the reflex type being more usual. Lithæmic neurasthenia resolves itself into an aggregation of the various symptoms of nervous irritation already mentioned, their severity and diversity being determined by the idiosyncrasy of the patient and the departure from the normal of the metabolic activities.

A few cases which have come within my own experience have shown some unusual features. The association of hallucinations

* Some Observations on the Physiological Action of the Mercurials and Iodides, as Elucidated by Recent Chemical, Physiological, Pathological, and Clinical Investigations. MERCK'S BULLETIN, January, 1892.

with the lithæmic state, I believe to be exceedingly rare; I have recently called attention to a patient who suffered from hemiparæsthesia of the entire left side of the body, associated with hallucinations of hearing.*

I have also seen a case of lithæmia which presented a number of the symptoms of grave cerebral disease, namely, strabismus, intense cephalalgia, and distressing vertigo, so severe as to prevent the patient from walking alone; of course, the usual symptoms of mental depression and extreme nervous irritability were all present. During the past year I had under my care a gentleman, who came to me complaining of a persistent insomnia. Associated with it were clonic spasms of the internal recti muscles which were accompanied by a severe headache, rendering application to his professional duties almost impossible; this peculiar eye condition was called by a New York oculist, hysterical, and by a distinguished French oculist, neuralgic. Recently there came to me a gentleman who said, that for several months before the symptoms of which he now complained manifested themselves, he had been a sufferer from insomnia and great nervous irritability. His present symptoms are lightening pains, which appeared first in the chest region, at times, however, the pains became dull and persistent in character; later they began to appear in one arm, then in the other, ultimately they manifested themselves in the back; the lower extremities have not yet been involved. On one occasion he was seized with an attack of shooting pains while in my office; both hands became white and cold, resembling in every respect *mortui digiti*. These pains are so excruciating that he has at times contemplated suicide. He has had constant night sweats and cold, clammy extremities. This case also presents great disturbance of the heart's action, the so-called sympathetic heart.

AN EXCEPTIONAL CASE.

I wish to call attention here to what I con-

sider an exceptional case, in which intense pain was the characteristic feature of the disease. I quote the patient's own words: "In the fall of 1868 I first felt the pains that have caused me so much suffering. I was then 35 years old, they increased with my years, and as I approached 40 years became so severe as to compel me to rise on an average twenty times during the night. For six weeks during the early summer of 1873, my sleep scarcely lasted more than ten minutes at a time until morning, when I would sleep for longer intervals, but never as long as an hour. Below the waist the body became very cold, and the muscles on the outside of the thighs seemed to stand in ridges like a washboard. Nothing relieved me but rubbing; when exhausted myself, a member of the family rubbed me down the outside of the limbs from the hips to the toes, for a time with camphor and later with sweet oil. The skin being abraded with so much rubbing, at times I had to do without it and walked the floor the most of the night as I could not keep in a chair relaxed without pain. Great and frequent headaches set in about this time, attacking me every two weeks, sometimes oftener. I resorted to blue pills, thinking the liver caused my headaches; but was made very much worse, and had to resort to large doses of quinine to bring me out of the depths of this weakness. I observed during the headaches great lessening of the pains in the limbs; I also observed that in rainy and, to others, depressing weather, I was very much more free from pain and felt rested."

In the summer of 1882 this patient spent several months at the sea shore, her condition being improved by the change; at this time also she had some local difficulty removed which had been a source of reflex irritation. The operation seemed to remove the headache and for a time being lessened the pain. She was given at this time a tonic of iron, quinine, strychnine, and phosphorus, and improved somewhat in general health and ability to sleep. Anything, however, affecting her general condition increased the pain and inability to sleep.

* Melancholia Clinically Considered, Especially in its Relations to Lithæmia, Bright's Disease, and Glycosuria. *The Journal of Nervous and Mental Disease*, September, 1891.

"In the fall of 1888," she continues, "my cares and anxieties were increased, and since that time I have gradually weakened and the pains increased to such fierceness that I was a wreck again in the summer of 1891. I was so weak, for all appetite had deserted me, that I tottered in walking and was constantly in fear of falling. A small child, by running against me, could have knocked me down. It was a great task to walk one square or to mount one flight of steps; I relied upon my arms to pull me up. I did not sleep three hours in all out of twenty-four. I had no strength to rub myself, I was absolutely despairing." Under treatment this patient began to improve. She says: "I am now sleeping regularly, better than I have done for twenty-three years; I am never up in the night to rub more than three times, usually but twice. The pains are extremely moderate, having nothing of the intensity of former times, appetite good, and I am able to meet the demands on my strength, which in my former condition I should have been unable to stand."

I was somewhat perplexed a few days since by a case, evidently of lithæmia, which presented a rhythmical tremor of the right arm and leg, together with ankle clonus on both sides, but especially marked on the right. A propos of this phase of the subject, Dr. HAIG * says, "I have several times noticed what appears to be a fairly constant relation between the uric acid in the blood and the presence, absence, or alteration in amount of certain forms of tremor."

With the assertion of the same author that "Other things being equal, arterial tension varies with the amount of uric acid that is circulating in the blood," my experience does not accord. The high arterial tension is, I believe, not due to the presence of uric acid in the blood, but to the presence there of its antecedents, stimulating the primary vaso-motor centre. On the other hand the presence in the blood of other antecedents may depress

the same centre and be followed by a low arterial tension, both of which conditions I have seen in lithæmia.

THE DIAGNOSIS OF LITHÆMIC NEURASTHENIA.

The diagnosis of lithæmic neurasthenia is not usually difficult. The vertigo, noises in the ears, pressure on the top of the head with the sensation of fullness, paræsthesia, coated tongue, bad taste in the mouth, urine which is of high specific gravity and contains an excess of uric acid, suffice to make the character of the disease perfectly clear. The renal secretion may be increased or diminished in quantity, usually the latter; I have seen it reduced to fourteen ounces in twenty-four hours. One ought, however, to keep in mind the dictum of PROUT, that organic disease may be associated with the lithates, and that such an association is an evil omen. The presence of the lithates is secondary to the organic disease and is simply the indication of a seriously deranged bodily metabolism.

THE PROTEIDS.

The proteids are the most important substances that occur in animal and vegetable organism; none of the phenomena characteristic of life occur without their presence. They are invariable and constant constituents of protoplasm. The proteid constituents of the animal body are derived from vegetables either directly or indirectly through the body of some animal.

HALLIBURTON quotes the following description of these most important substances from GAMGEE, in lieu of a logical definition: "Proteids are highly complex and (for the most part) uncrystallizable compounds of carbon, hydrogen, oxygen, nitrogen, and sulphur, occurring in a solid viscous condition, or in solution in nearly all the solids and liquids of the organism. The different members of the group present differences in physical and even to a certain extent in chemical properties. They all possess certain common chemical reactions, and are united by a close genetic relationship."

* Uric Acid in Diseases of the Nervous System. Brain, 1891.

"The proteids may be divided into two classes, animal and vegetable, the quantity of protein being less in the latter than in the former. The chief animal proteids in food are the myosin of flesh, the casein and albumen of milk, and the proteids of egg and blood. The chief vegetable proteids are, gluten, vegetable myosin and other vegetable globulins. The animal proteids are more easily digested than those of vegetable origin" (HALLIBURTON).

THE SELECTION OF A SUITABLE DIET IN DISEASE.

In order to understand the principles which govern the selection of a suitable diet in disease, we should carefully study the three great classes of proximate principles into which food stuffs are divided, namely, the inorganic substances, the carbo-hydrates and fats, and the proteids. The end products of a normal proteid metabolism are urea, uric acid, creatine, carbon di-oxide, and water, which bear certain definite relations to each other. "If for any reason there is an abnormal transformation along this line of proteid metabolism, the relative quantity of urea falls and the uric acid rises. By closely studying the urinary changes and intelligently interpreting them, there is furnished an almost exact key to the perfection or imperfection of the oxidation processes and the nutritive condition of the body. . . .

Another important phenomenon to be remembered in connection with the oxidation of the proteid substances, is the fact that a disturbance in their anabolism not only changes the relative proportions between the urea and the uric acid; but tends to develop an almost unlimited number of katabolins, some of which are perfectly inert, while others are toxic and dangerous to life." *

It is in this way that we account for the development of the lithæmic neurasthenia. Abnormal proteid metabolism is usually due to overfeeding, with insufficient oxygenation or to the excessive use of starchy or saccharine foods.

"For my part," says Dr. E. C. SEGUIN, * "I have for a long time been thoroughly convinced that the excessive use of starchy and saccharine food so prevalent in this country is a potent cause of oxaluria and lithæmia and thus indirectly of neurasthenia. My practice has been based upon this belief and I have no reason to modify it."

The fats, sugars, and starches that enter into a mixed diet are most readily oxidized, hence, "They are the first elements to be changed and to be transformed into their final products. This tends to leave a deficient quantity of oxygen to act upon, and to accomplish the more difficult task of carrying the nitrogenous compounds through their cycle of change and finally into perfect excrementitious substances." Clinically it is of importance to remember that the fats of animal origin are more readily digested than those derived from a vegetable source.

According to FOTHERGILL animal food adds to lithiasis. He commends "The food of the Patriarchs, — 'corn, wine, and oil.'" He permits also fish, allows fruits, advises "well-prepared farinaceous matters." The animal diet which Dr. HAIG advises in uricacidæmia is milk with small quantities of fish or egg. He further states that in his own case if he eats meats and drinks wine for two or three days, he induces the nervous symptoms arising from the lithæmic state to which he is liable. I am inclined, however, to attribute the nervous symptoms from which he suffers, not to the meat eating, but rather to the wine or beer imbibed along with it, alcoholics being unquestionably prejudicial in the uric acid condition. "After considerable experience and clinical experimentation I have come to the conclusion," says Dr. L. C. GRAY, "that there is no special diet for lithæmics, as a rule, except for a short period of time." MURCHISON believes that an animal diet is the one usually indicated, although in exceptional cases farinaceæ and vegetables are required. "In many

* The Physiology of Digestion and Assimilation. Pages 50 and 51.

* Lectures on some Points in the Treatment and Management of Neuroses. Page 65.

nervous cases, I greatly reduce the amount of starchy and sweet foods," says Dr. E. C. SEGUIN, "partly to save chemical labor and render full oxygenation more easy, partly because in many cases there is actual oxaluria or lithæmia. . . . The best food, the most necessary for the nutrition of the body, that needing a free outpouring of gastric juice and that digested with least chemical waste,—beef, mutton, game, poultry, fish, and eggs—should be eaten first and chiefly; bread I almost always reduce, advising stale or well-toasted bread." For reasons previously stated I place patients suffering from lithæmic neurasthenia upon a strict regime of animal food, excluding all sugars and starches. I have found that the proteids and fat existing in combination in animal food, together with a small allowance of bread preferably toasted, constitute an ideal dietary for lithæmics. I can recall one instance where practically the only article of food that the stomach would tolerate was cheese; this being very rich in proteids—33%—the patient improved and rather gained than lost flesh.

The animal proteids are much more suitable for such a dietary than those of vegetable origin, for the reason that the latter demand a larger amount of oxygen and vital force for their digestion, and necessitate the handling by the animal economy of a greater quantity of excrementitious matter which must be eliminated, thus taxing to their utmost the vital resources. I have excluded green vegetables upon the dictum of HALLIBURTON that they should be esteemed rather as a palatable adjunct to other foods, than for their nutritive properties. Additions to the dietary may be made as the metabolism of the patient approaches the normal standard.

"Unless some condensed form of proteid, such as milk, eggs, etc., be added to a non-nitrogenous diet the patient will waste." (HALLIBURTON). The great disadvantages, therefore, of a non-nitrogenous diet are the large quantity necessary to obtain the requisite amount of proteid, the fermentative changes occurring in

the digestive tract, and the great increase in excrementitious matter.

I wish here to enter a protest against what I may call an "oatmeal diet" in any condition of impaired metabolism. Its moderate use to the healthy individual who takes abundant exercise is not injurious; but its excessive use almost invariably increases the formation of uric acid and gives rise to the lithæmic state.

THERAPEUTIC MEASURES.

Along with a dietetic regimen which should be scrupulously observed, there should be combined certain therapeutic measures.

The liver should be thoroughly stimulated by some efficient cholagogue, than which none are ordinarily more useful than the mercurials. These should, however, be at first tried with caution, especially in patients markedly depressed, as they may cause an aggravation of all the symptoms. We thus eliminate from the system the old and deteriorated bile and at the same time stimulate the hepatic cells to a renewed activity. New bile should now be administered, preferably in capsules before meals; the bowels should move daily. More important than all other therapeutic measures is an abundant supply of oxygen, without which a healthy bodily metabolism is impossible. Persistent exercise in the open air should be insisted upon; horseback riding is preferable to walking, "as it increases the functional activity of the liver and relieves plethora of the abdominal organs." (MACFARLAND.)

I wish to call especial attention to the proper use of the alkaline and mineral spring waters. They are almost universally prescribed for this condition without, I think, sufficient thought having been given to the rationale of their physiological action upon the system. The statement of CADGE quoted above I believe to be true, that "The water and saline constituents of the urine are simply eliminated from the blood by osmosis," hence their action there is purely mechanical, not chemical in nature. As no transformation takes place in the system, of the water or of its saline compounds, its use is of no therapeutic value aside from sweeping

out from the uriniferous tubules the insoluble crystals of uric acid which may cause mechanical irritation, and it has no influence whatever over abnormal metabolism. There take place however in the uriniferous tubules various chemical combinations between the uric acid "which has been produced by the vital action of the epithelial cells lining the tubules," and the saline compounds which with the water have left the blood stream at the Malpighian tufts.

If the ingestion of mineral waters has been sufficient, the result of this chemical action in the renal tubules is that the uric acid disappears, and the urine on examination is found to be unirritating, transparent, and at times even alkaline. Such a condition may often deceive the physician, who is at a loss to explain the clinical fact that his patient is growing constantly worse, notwithstanding the apparently normal condition of the urine.

Again, similar chemical processes take place if there be an excessive amount of mineral salts taken into the system with the food-stuff, resulting in the formation of "normal and acid salts of the urates and a superabundance of the earthy phosphates." I have formerly been at a loss to account for the disappearance of uric acid and the persistence of the symptoms in certain cases. "Over and over again," says Dr. GRAY, "I have been struck by the disproportion of the nervous symptoms to the quantity of uric acid discovered in the urine, as well as by the obstinate persistence of grave nervous symptoms after every effort had been made to keep the excretory organs acting freely." The true explanation of this anomaly is that the antecedents from which the protoplasm of the epithelial cells excretes uric acid, are still circulating in the blood and exerting their toxic influence upon the nervous system. The recognition of the true role played by mineral waters and by the excessive ingestion of mineral salts in the food-stuffs, furnishes not only an explanation of this anomalous condition, but also a clue to its treatment.

Not believing that uric acid exists in the

blood, I cannot agree with Dr. HAIG as to the rationale of the treatment he employs in uric-acidæmia. The use of the mineral acids which he advises, I often find of great benefit, but I believe their value to consist in their being simply an aid to the digestive process, rendering the metabolic activities more perfect. In my opinion the influence of salicylate of soda can be best explained by its action as a cholagogue by which it stimulates the functional activity of the liver. The chemical combination in the uriniferous tubules formed by the union of a powerful organic acid with the soda, resulting in urate of soda, causes a disappearance of the uric acid from the renal secretion. This may be the explanation of the apparent elimination of the uric acid by this drug which Dr. HAIG describes.

Incidentally it may be noted that the neuralgic pains from which lithæmics suffer are most readily relieved by general "franklinization," its effects being in many cases instantaneous and lasting. Spinal galvanization is a very useful adjuvant to the treatment of lithæmia, as it relieves nervous irritability and is a valuable tonic to the nervous system. Turkish and Russian bñths are of questionable utility and should be used only on the advice of the physician. Massage is of value to that class of patients who are unable to exercise without extreme fatigue. Its use conserves the strength of the patient, while maintaining at the highest the nutritional powers. I believe that alcoholic beverages should be entirely excluded, although many writers think that there are exceptional cases where they may be used with advantage. The poisonous influence upon the nervous system of the ptomaines and leucomaines, arising from the katabolic processes of metabolism, may be antagonized by the use of antiseptic remedies, along with the regulation of the diet. I have found the following formula of DUJARDIN-BEAUMETZ to be of the greatest value.

ANTISEPTIC CAPSULES.

Bismuthi Salicylas,
Naphthol, Alpha-,

Carbo Ligni Pulv.,
ana 3 ij ss.

M. et div. in caps. No. LX.

Sig.: From one (1) to two (2) capsules after each meal.

"The phenomena of epilepsy suggest that the instability of the gray matter, its tendency to discharge, depends upon instability of resistance, rather than on any primary change in the energy-producing action of the cells, although the latter may be secondarily augmented by the increased demand: . . .

hence the fact that there is over-action is consistent with the theory that there is imperfect nutrition. . . . Epilepsy must be regarded then as a disease of gray matter, most frequently of the gray matter of the cortex."*

According to CLOUSTON† "Almost all cases of true epilepsy first arise during the growth and development of the brain. . . .

There are two epilepto-genetic periods: the first during the period of fastest brain growth, from birth up to seven, and the next during the last period of slow brain growth; but rapid development in the early reproductive period, from twelve to eighteen."

This proves that epilepsy develops most frequently at the time of greatest nutritional stress.

HUGHLINGS JACKSON‡ believes the brain of epileptics to be in a condition of unstable equilibrium. "By nutrition of some kind the cells of the discharging lesion attain high tension and very unstable equilibrium and occasionally discharge suddenly, excessively and temporarily; their stability is after their discharge below normal; by continuance of this abnormal nutrition they re-attain high tension, or no fits would ensue. What is the 'base fashion' of nutrition of these cells? It does not follow that the cells are more nourished, although they are certainly worse nourished. So to put it, they may be less nourished in quantity and worse nourished in quality. The nutrition must be such that it alters the com-

position of nervous matter in the cells and in such a way, that it becomes more explosive."

It appears then that GOWER, CLOUSTON and HUGHLINGS JACKSON coincide in the opinion that the basis of a "discharging lesion" in an epileptic is a "morbid nutrition."

"The largest chemical constituent and the only constant one in protoplasm is proteid matter. . . . This comprises about one-half the solids in gray matter, about one-fourth of those in white matter, and about one-third of those in nerve."*

Healthy nutrition of the cell and its normal physiological action depend upon supplying its protoplasm with food, rich in proteid matter. HUGHLINGS JACKSON advances the theory that the morbid condition of nerve cells in epilepsy is due to a substitution nutrition, "phosphorous compounds become more nitrogenous and nitrogenous compounds being more nitrogenized," thereby rendering them more explosive. There is certainly nothing better calculated to prevent this nutritional perversion with its consequent discharge of nerve force than the supplying to the brain cell its physiological pabulum.

Now my contention is not that epileptics should be fed on a strictly proteid diet, but that they should have the amount of animal food requisite to bring up the nutrition of the cortical cells, as nearly as possible, to their normal standard. "It is animal food," says SEGUIN, "which gives strength and increases normal nerve power. . . . *A priori* I should expect a starchy diet to cause nervousness by the setting up of oxaluria and lithæmia."

"It has been recommended," says GOWER, "on theoretical grounds that the diet of epileptics should contain little or no animal food. The evidence of experience, so far as I have seen, is opposed to this opinion. I have known the exclusion of meat from the diet to cause great increase in the severity of the fits, which became slighter when meat was

* Diseases of the Nervous System. GOWER. Page 1100.

† The Neurosis of Development. Page 100.

‡ The Lumleian Lectures on Convulsive Seizures. *The British Medical Journal*, April 5th, 1890.

* Text-Book of Chemical Physiology and Pathology. HALLIBURTON. Pages 152 and 5117.

again given, and I believe that patients do best if a moderate quantity of animal food is given twice a day, care being taken to avoid that which is indigestible." The argument advanced by persons opposed to an animal diet was, that meat was an excitant and favorable to convulsions.

With the exception of the leguminous vegetables, the articles adopted for a farinaceous diet contain but a small percentage of proteid, all however being rich in carbo-hydrates; green vegetables are largely water, their nutritive properties being very small. From what has already been stated regarding the relative digestibility of proteids, carbo-hydrates and fats, it will be readily seen that aside from there being a minimum of albuminous substances in the farinacea, the assimilation of such a diet imposes an "energy tax" which the unstable brain is little able to endure. Moreover such a diet causes a large increase of excrementitious matter which the system is obliged to eliminate; it also gives rise to a great number of the by-products of an abnormal proteid metabolism, whose presence exerts a toxic effect upon the nervous system, lowering the nutrition of the cerebral cells and lessening their inhibitory power.

It is hardly necessary to add that the proteid dietary should be accompanied by a carefully conducted bromide treatment.

There is one condition arising directly from a great variety of morbid states, the ultimate source of many of which is a deranged bodily metabolism. This condition is arterio-sclerosis. Chronic rheumatism, gout, all the family of arthritic and hepatic diseases, "in a word, all that morbid group, which BOUCHARD has studied under the name of maladies of slackening nutrition . . . are susceptible of producing arterio-sclerosis." (GRASSET.)

GRASSET'S* theory of arterio-sclerosis, following HUCHARD, is briefly as follows: Arterio-sclerosis is a general disease, almost a disease *totius substantiæ* and constitutes, given

the possibility of subsequent localization, the initial bond between many maladies of distinct terminal appearance. Many diseases much differentiated at an advanced period of their evolution, and bearing, some upon the kidney, some upon the heart, others upon the brain, have in fact in many instances begun in the same manner by a common and generalized lesion of the vascular system. Bright's disease is an affection symptomatically very distinct from softening of the brain, but in both cases the therapeutics of the developed state are often of small use: if you face the initial phase common to the two diseases, and not yet having arrived at a localization, you find yourself in the presence of identical alterations, still curable, still susceptible of being overcome. Atheroma is, as Bright's disease and softening of the brain, a frequent outcome of arterio-sclerosis, without constituting on that account the constant and indispensable manifestation, the rigorously exclusive localization of arterio-sclerosis. If the localization of arterio-sclerosis is upon the kidney, it provokes Bright's disease. When it affects the brain, it can give rise to a thrombosis, premonitory accident of an ulterior softening; and when it selects the vasa vasorum, that is to say, the characteristic vessels of the arterial wall, atheroma is the consequence. From a strictly anatomical point of view, arterio-sclerosis is an arteritis, or at least a mixture in variable proportions of endarteritis and periarteritis. The initial phase of arterio-sclerosis is a general disease of the arteries, the prognosis of which may be regarded as favorable; the more advanced stage of its evolution is its localization upon some vital organ, in which treatment is simply palliative.

Unfortunately, the initial and curable stage of this disease presents such ill-defined symptoms that they are seldom recognized; and when the organic localization does take place, the preceding symptoms are usually attributed to it instead of the parent disease. One of the initial symptoms of this disease is arterial hypertension; the irritating causes provoking

*I give a free and abridged translation from "Du Vertige Cardio-Vasculaire." (GRASSET).

arteritis occasion a spasm of the small arteries, intermittent and passing at first, but becoming more and more lasting, resulting in an inflammation of the vessels and subsequent arterio-sclerosis. The functional symptoms of this condition of hypertension are habitual depression, shortness of breath after exertion and climbing, painful palpitation, coldness of the extremities, light precordial pains, and fits of pallor; the physical signs are a presystolic mitral murmur, which, however has only an ephemeral existence, and the presence of an accentuated diastolic throb in the aortic vestibule, that is to say, in the region of the most interior part of the second or third right intercostal space. This diastolic aortic beat is one of the most enduring and constant symptoms of arterio-sclerosis. It is nearly always present and exists independent of an ultimate localization which may take place in the course of the disease. Other arterial symptoms are, increased hardness of the radials and flexuosity of the temporals. In addition there may be headaches, neuralgia, and somnolence.

SUMMARY.

It would be instructive to study this interesting subject in all its ramifications, but I think I have followed it sufficiently to show that in it we have a condition arising from deranged metabolism, which in its turn gives rise to a variety of morbid states, many of them being affections of the brain and cord, those which I wish to emphasize being atheroma, with its resultant apoplexy and thrombosis, the antecedent of brain softening. I would strenuously urge the necessity for the recognition of that primary arterio-sclerotic condition of the vascular system which precedes its localization upon some vital organ. These morbid states once established are irremediable. It is therefore to their prevention, and not to their cure, that we must direct our attention. It is the frequent occurrence of apoplexy, and the fact that in the clear sequence of conditions from the initial nutritional stage through the evolution of the arterio-sclerotic state to the resultant cerebral hemorrhage, there is offered us a

clue to its prevention, which has induced me to give what may seem undue prominence to this too-little studied vascular disease.

I have attempted to indicate the relative importance of the proximate principles of food-stuffs, and I hope that I have shown the value of the proteids in lithæmic and allied conditions. I believe that the dietetic measures which I have already suggested will be most valuable in the class of cases last discussed. The vascular hypertension may be temporarily reduced, but it cannot be entirely removed so long as the exciting causes behind it remain, and these causes most often lie in an abnormal proteid metabolism. The most valuable agents in reducing the arterial hypertension are, iodide of sodium and nitro-glycerin.

ARSENIC—preferably in the form of Fowler's solution—is considered by Dr. REX the best remedy for *chorea*.

STRONTIUM SALTS have been found by Dr. LABORDE to exert a very destructive action on the eggs or germs of *tænia*.

PERFUMERY used on handkerchiefs during an attack of *hay fever* is reported to act as an excitant, provoking excessive sneezing.

GELSEMIUM TINCTURE, 5 drops increased to 10 drops 3 times a day, is recommended by Prof. DA COSTA in *neuralgia* of dental origin.

MORPHINE in small doses ($\frac{1}{100}$ — $\frac{1}{50}$ grain) is recommended by Dr. G. M. GARLAND for the relief of the pain and cough in the initial stage of *pleurisy*.

TURPENTINE OIL given with mucilage, in doses of 10–20 drops, has been recommended as a most valuable remedy in the later stages of *typhoid fever*.

BEECH-TAR CREASOTE in doses of $\frac{1}{10}$ — $\frac{1}{4}$ minim, every 2–3 hours, combined with $\frac{1}{10}$ — $\frac{1}{5}$ -grain doses of sulphonal, and taken with tolu syrup, is lauded by Dr. L. DE ALMEIDA in *whooping-cough*.

THE FORMATION OF THE DIGESTIVE ACIDS.

BY WILLIAM HENRY PORTER, M.D.

ACIDS OF THE GASTRIC JUICE.

The kind of acid found in the gastric juices has been a subject of dispute for many years. That several kinds of acids have been found in the fluid removed from the stomach is beyond doubt. That both hydrochloric and lactic acid are the two acids most commonly found in the fluid contained in the stomach is also generally conceded. The weight of opinion, however, at the present time, leans toward the hydrochloric acid as the normal acid ingredient of the gastric juice.

The fluids constituting blood and lymph, and entering into the composition of all the tissues of the body, are alkaline in reaction, while the chemical characteristic of the gastric juice is the mineral compound: hydrochloric acid. This marked contrast in composition and reaction has been taken by some as proof positive that the inorganic substances are transformed while within the system.

INORGANIC COMPOUNDS NOT DECOMPOSED IN THE BODY.

A little closer study into the subject of the formation of hydrochloric acid, however, may show quite conclusively that the theory that inorganic substances are not chemically decomposed within the body holds good in very nearly all, if not absolutely all, instances. It will also sustain the theory advanced, that, when these inorganic compounds are decomposed and changed into different forms, this transformation is always effected by the action of the surface cells of the mucous membranes; or by the glandular cells, which are also upon the surface or on the outside of the body—speaking in a strictly structural sense.

It will also show positively that these chemical transformations do not occur in the blood or lymphatic channels or in the substance of the deeper tissues of the body, where the functions of organic life are acting in a normal and uniform manner.

Assuming, then, that hydrochloric acid is

the acid which in the gastric juice is essential for the transmutation of the alkali-albumin into acid-albumin or syntonin,—this naturally suggests the query: Where is the hydrochloric acid formed and how shall its development out of the alkaline blood be clearly explained?

HYDROCHLORIC ACID NOT FORMED IN THE DEEPER TISSUES.

That the hydrochloric acid is formed upon the free surface of the gastric mucous membrane and not in the deeper structures of the membrane lining the stomach, is quite conclusively proven by the experiments of BRÜCKE,* who found, by removing thin films of the gastric mucous membrane, that only the free and external surface of this membrane had an acid reaction. The raw surface from which these thin films of membrane were removed and all the underlying tissue was always positively alkaline in its reaction. BRÜCKE also found that fragments obtained from the membrane just underneath the point where the surface layer was removed could be crushed between blue litmus paper without causing a red spot, whilst reddening was produced at once on contact with the external and free surface of the gastric mucous membrane.

With this valuable proof at hand it can be affirmed that the acid of the gastric juice is developed or completely formed at or upon the free surface of the mucous membrane and not within the deeper structures of the membrane.

THEORIES OF HYDROCHLORIC-ACID FORMATION; THEIR FALLACIES.

A number of theories have been offered in explanation of the method by which the hydrochloric acid is formed; all of which have been more or less condemned. FOSTER† suggests that the hydrochloric acid is developed by the decomposition of some highly complex and unstable chlorine compound formed in the cells, rather than to assume that it should arise

* *Sitzungsberichte der Wiener Akademie*, vol. xxxvii., p. 131; 1859.

† A Text-Book of Physiology. M. FOSTER. London. Macmillan & Co. 5th ed. Part II., pp. 418 and 241.

by the direct splitting-up of so stable a body as sodium chloride.

On the other side, the hydrochloric acid is thought to be directly formed from the sodium chloride of the blood because that salt rapidly disappears from the urine during gastric digestion.

Others have assumed the formation of the hydrochloric acid from the chloride of sodium by union with carbonic acid. The great objection which has been raised to this hypothesis is the stability of the sodium chloride and the weakness of the carbonic acid.

RALFE, at this point, however, assumes the passage of electrical currents through the mucous membrane, thus explaining the causation of the reaction between the mono-sodium carbonate and sodium chloride with the formation of the hydrochloric acid: $\text{NaHCO}_3 + \text{Na Cl} = \text{Na}_2 \text{CO}_3 + \text{HCl}$.

Another hypothesis of formation, using the same supposed electrical current as the exciting factor, develops the acid as follows: $\text{Na Cl} + \text{CO}_2 + \text{H}_2\text{O} = \text{NaHCO}_3 + \text{HCl}$.

Both HALLIBURTON* and BUNGE† state that there are no valid grounds for supposing that electrical currents exist within the body. While BUNGE states that outside of the body the only form of kinetic energy that is capable of separating hydrochloric acid from aqueous solutions of sodium chloride is electricity, he also shows quite conclusively that no such intense electrical action has been proved to exist in the gastric epithelial cells. Therefore, the above theory of formation must be discarded.

BUNGE then cites the experiments of JUL. THOMSEN‡, as tending to prove that even the weakest acids can effect a change in the sodium chloride with the formation of hydrochloric acid, and especially so where aided by cellular activity. This method of formation, however, is an extremely slow process, whilst

hydrochloric acid is formed quite rapidly in the stomach.

MALY* went a step further and actually proved that lactic acid is capable of producing hydrochloric acid from a watery solution of sodium chloride.

HALLIBURTON leans toward the lactic-acid theory as first promulgated by MALY†. He assumes a lactic-acid fermentation of the carbo-hydrates taken into the stomach as food, and, as a result, the formation of lactic acid, which attacks the chloride of sodium in the stomach and thus forms hydrochloric acid: $\text{C}_3\text{H}_6\text{O}_3 + \text{Na Cl} = \text{C}_3\text{H}_5\text{Na O}_3 + \text{HCl}$.

One of the chief difficulties in the way of accepting this theory of MALY has been the presence of the hydrochloric-acid secretion even in the absence of all carbo-hydrate compounds in the food contained in the stomach.

This most serious objection was ingeniously met by the experiments of LANDWEHR‡, who produced a carbo-hydrate from proteid matter, in the form of a substance that he called animal gum, with the formula $\text{C}_6 \text{H}_{10} \text{O}_5$. This substance was developed out of mucin, and then changed into gumose with the formula $\text{C}_6 \text{H}_{12} \text{O}_6$. While this compound could not be made to undergo alcoholic fermentation, it was ultimately transformed into lactic acid; but the formation of lactic acid by this complex process is altogether too slow to explain the rapid production of the hydrochloric acid. It will of course explain the formation of lactic acid in the absence of the carbo-hydrate food-stuffs.

If the lactic-acid theory were to be accepted at all, a much more logical hypothesis for the formation of the lactic acid itself would be, its derivation *direct from proteid decomposition*, as theoretically formulated by me in my oxidation scheme of the proteid bodies§; and then to assume that the gastric epithelial cells have the selective power of taking the atomic isomer

* A Text-Book of Chemical Physiology and Pathology. W. D. HALLIBURTON. London. Longmans, Green & Co., 1891, p. 636.

† A Text-Book of Physiological and Pathological Chemistry. G. BUNGE. Translated by L. C. Wooldridge. London. Paul, Trench, Trübner & Co., 1890, p. 161.

‡ "Thermochemische Untersuchungen," *Poggendorff's Annalen*, vols. cxxviii.-cxlili., 1869-1871.

* *Liebig's Annal.*, vol. clxxiii., pp. 250-257; 1874.

† *Sitzungsb. d. Wien. Akad.*, vol. lxix, 1874; also vol. lxxvi.

‡ *Chem. Centralbl.*, 1886, p. 484; *Pflüger's Archiv*, xl., 21 also xxxix., 193.

§ MERCK'S BULLETIN, 1892; p. 100: Table I.

of lactic acid formed by the proteid katabolism and discharging it upon the free surface of the gastric cells as a fully formed lactic acid, in the same manner as this is known to occur in the renal cells in connection with rheumatic affections.

HYDROCHLORIC ACID CERTAINLY DERIVED FROM SALT INGESTED.

At this point it may be well to note that CAHN* has shown that a withdrawal of the sodium chloride from the food causes a disappearance of the hydrochloric acid from the gastric secretion; thus tending to establish beyond a doubt that the hydrochloric acid must be formed from the chlorine contained in this salt.

A COMPATIBLE THEORY AT HAND.

There is possible, on this basis, a theory, which in many respects would seem to be more complete in all of its details than any of those noticed above.

It is a well-known fact that all proteid bodies contain an element of sulphur. It is also as generally conceded that in the katabolism of the albuminoid substances the sulphur is joined to oxygen and hydrogen to form an antecedent of sulphuric acid, and that it finally appears in the excretions as a sulphate, increasing the amount of these salts above the quantity which is taken-in daily with the food. But where and how this katabolic transformation occurs, has not heretofore been stated.

Theoretically, therefore, we are justified in the assumption that sulphuric acid is formed out of the proteid metabolism.

SECRETION OF SULPHURIC ACID.

The researches of TROSCHÉ†, JOHANNES MÜLLER and BOEDECKER are of inestimable value. For TROSCHÉ and MÜLLER have shown conclusively that in a whole series of lower animals the commencement of the alimentary canal actually forms or secretes a large quantity of undisputable sulphuric acid, thus establishing the law that organic animal

life can produce out of the metabolism of the proteid substances sulphuric acid.

These observations and results have also been corroborated by PANCERI and DeLUCA*,

BRÜCKE has proved by his experiments that the acid comes into existence as a definite and known compound at or upon the free surface of the gastric epithelium.

Taking all these data together, it seems not only reasonable, but highly probable, that one of the selective functions of the gastric epithelial cells is, to form, out of the process of proteid metabolism, the katabolin: Sulphuric acid. It certainly is just as reasonable as it is to assume the selective production of the proteid substance pepsin and the milk-curdling ferment rennin † from the albumin.

THE PROBABLE REACTIONS.

Then, by the action of this sulphuric acid upon the sodium chloride, we have the hydrochloric acid and a sodium sulphate: $H_2SO_4 + 2NaCl = Na_2SO_4 + 2HCl$.

The hydrochloric acid thus formed, after having served its purpose as the acid essential to gastric digestion, passes on into the intestines and then comes in contact with the normal sodium phosphate, forming a Hydro-di-sodium phosphate and *re-forming* the previously decomposed sodium chloride. Thus $HCl + Na_3PO_4 = Na_2HPO_4 + NaCl$.

EXPLAINING DIVERSE PHENOMENA.

Taking this view of the *modus operandi* of the formation of the hydrochloric acid, a logical explanation for the disappearance of the sulphur contained in the proteid molecule is given. The formation of the hydrochloric acid of the gastric juice from the chloride of sodium is as clearly established as by using lactic acid. And in addition we have a sulphate produced, which is in keeping with the fact that the amount of sulphates eliminated daily is greater than the quantity taken as food per day.

By these chemical transformations, all of

* Zeitschr. Physiol. Chem., x., 522.

† Poggendorff's Annal., vol. xciii.; p. 514, 1854;— or Jour. f. Prakt. Chem., vol. lxiii., p. 170; 1854.

* S. DeLUCA and P. PANCERI, Compt. rend., t. lxxv., pp. 577, 712; 1867.

† FOSTER's Physiology, 5th ed., p. 419.

which have practically occurred in the lumen of the alimentary tract, we have two important facts explained:—*First*—the restoration of the sodium chloride is effected, which keeps the amount of this salt eliminated from the system equally proportioned to the quantity taken in with the food-stuffs. *Second*—the conversion of the neutral phosphate into the acid form explains the abundance of the Na_2HPO_4 in the animal organism, whilst very little of this particular form of phosphate is found to exist in the food elements. It also explains and substantiates the correctness of the statement that the amount of hydrochloric acid produced is always in harmony with the quantity of sodium chloride taken and in keeping with the perfection of proteid metabolism.

This line of argument explains how and where the mineral acid H_2SO_4 is elaborated out of the proteid metabolism; also the method by which the sodium chloride can be decomposed to form the hydrochloric acid, without the intervention of electrical or special biological forces; and, lastly, that this transformation is effected upon the free surface of the cavity of the stomach by the surface cells that constitute the gastric mucous membrane, and that it does not occur in the deeper structures of the body.

It is, therefore, pretty strong collateral or presumptive evidence that the inorganic substances are *not chemically transformed within the system*, but that they are changed *on the outside* of the body (in the structural sense), similarly to the reactions previously noted* in connection with the renal secretions; which latter tended to prove directly the same theory, that inorganic compounds are not decomposed within the circulatory channels or deeper tissues of the system.

APPARENT REFUTATIONS MET.

Where such changes *seem* to have occurred, it is due to the formation of an organic or mineral acid by the proteid katabolism. This acid compound exists in its *known and active* chemical form only as its atomic elements are

brought together and eliminated by a superficial layer of epithelial cells. An isomer of the acid compound may have existed deeper in the system, as occurs in the case, for instance, of lactic acid; which may exist in the isomeric form known as sarco-lactic acid when in the deeper structures as in the muscles, but does not assume its more active chemical form until the atoms have been re-arranged and eliminated by the surface epithelial cells of the kidney tubules or possibly the gastric mucous membrane. (Excepted are, of course, the abnormal and pathological conditions.)

Any of the organic acids occurring as products of tissue katabolism in the body may have an inert isomeric construction deep in the structures of the tissues, but it seems to require the active agency of the protoplasmic elements which principally constitute the surface epithelial cells, to arrange them into their better known and active forms. When they have reached this active form they immediately begin to react upon the alkaline compounds and develop less irritating substances.

In the urine we have an acid salt formed with an acid reaction; but most of the new compounds are neutral in their reaction.

In the stomach, free acids—the sulphuric and hydrochloric—are produced, as we have already seen.

EXCEPTIONS IN ABNORMAL CASES.

When these active changes are developed in the deeper tissues, as appears to be the case in gout and rheumatism, it has resulted from continued sub-oxidation of the proteid compounds and the development of pathological protoplasm at various points of the body.

Then the abnormal protoplasmic elements take-on a vicarious action and excite the formation of free and active acids which at once cause intense chemical reactions—local or more general—and produce intense inflammatory changes, with their active symptoms,—which inflammatory process is one of Nature's means at hand for removing or encapsulating the destructive elements.

Thus it ought to appear rather evident to

* MERCK'S BULLETIN, 1892; pp. 3-15.

the unprejudiced mind that, when the functions of the body are acting in a normal and uniform manner, the inorganic compounds pass through the body unchanged, while in the blood or lymph stream. Even in the deeper tissues they remain unchanged; but, when they are being eliminated from the surfaces of the body in conjunction with the acid compounds formed out of the proteid metabolism, active chemical changes are produced; which has led to the erroneous belief that these chemical reactions were developed at deeper and at unknown parts of the system.

ALCOHOL is recommended by Prof. HARE to be rubbed into the skin when *bed-sores* threaten.

AROMATIC ELIXIR OF YERBA SANTA is recommended as a most acceptable *vehicle* for the cinchona alkaloids.

QUININE INTOXICATION can be *averted*, according to Dr. LEVI, by the following combination: Quinine Sulphate gr. LX, Pepsin gr. LX, Capsicum VI, Ginger XII, Sodium bi-Carbonate LX,—to be divided into 12 powders. One of these is the dose for *neuralgia*; but more or less may be given, according to the nature of the disease.

RANDIA DUMETORUM is regarded by Dr. SAWYER as an excellent *nervine*, *anti-spasmodic*, and *heart-tonic*. He prescribes it in those cases in which valerian, asafetida, and the like are usually employed, in doses of 15–60 of an ethereo-alcoholic extract, mixed with a little water. The active principle is described as a glucoside resembling saponin.

MEMBRANOUS LARYNGITIS is greatly benefited—it is claimed—by the administration of a teaspoonful of ipecac wine or dram doses of powdered alum, mixed with syrup or honey, to produce vomiting. If the patient is seen early, half-drop doses of aconite tincture, every 15 minutes for an hour, are recommended. Ammonium bromide in full doses is said to be useful, alternated with quinine, every 3 hours.

SODIUM CHLORIDE AS A THERAPEUTIC AGENT.

By JAMES WOOD, M.D.,

Clinical Assistant in Pathology and Clinical Medicine at the NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.

The medicinal use of this salt has never claimed the attention of the practicing physician as it should. Why the thorough study and intelligent use of such an important factor in many of the bodily functions should be so generally neglected is peculiar, and in consequence we are denied the knowledge which would be of incalculable use to us, while other less important substances, entirely foreign to the great problem of food utilization, have claimed almost unlimited attention.

One of the early truths taught is that NaCl is most essential to bodily functions, and must be supplied continually and in sufficient amounts. As always, in order to determine what quantity is sufficient, we are obliged to commence at the end, as it were, and study the urinary excretion of the healthy individual. VOGEL states that the daily amount of Cl excreted is 6–8 grammes, which would correspond to 10–13 grammes of NaCl. This amount, then, signifies that the system, in order to carry on normal metabolism, requires so much of this salt. The offices filled by this compound are numerous. It is the chief agent by which osmosis through animal membrane is effected. We are aware of the almost numberless transudations of the different elements in the body, and when we can appreciate that this salt is the chief agent for its accomplishment, its importance again asserts itself. In all its actions nothing can be substituted for it. The body suffers at once from its withdrawal, even when Potassium chloride is present. Again, in its passage through the body it facilitates the absorption of our most important nutrient element, proteid food, and increases tissue metabolism. Upon these two functions being perfectly performed depend not only health but the existence of the individual. The body demands for anabolic purposes a certain definite amount of proteid

material to meet the numerous katabolic or destructive metamorphoses, and at the same time the changes from one of these to the other must be effected in direct ratio as we are active or use tissue elements by oxidation to express animal existence. This great and vital action is only induced and perfectly performed in the presence of a definite and normal amount of NaCl.

Another office of importance filled by this compound has been brought to our notice by the experimentation in the physiological laboratory. It was demonstrated in this work that distilled water acts like a poison to protoplasm; fish kept in it die quickly; cilia stop moving; white blood corpuscles burst. So this again emphasizes the fact that for even body integration this salt is necessary. Many other bodily actions depend on this salt, but their importance is secondary to those named, except one, that the presence of the HCl of the gastric juice depends upon an abundant supply of NaCl (which fact is at present claiming much attention). It has long been known that the Cl came from this salt, but the method has been greatly disputed. By adopting possible analogies from the experimental work on the lower orders of life, much light has been thrown on the subject, and theories advanced which will explain known clinical phenomena heretofore unelucidated. It is beyond question, therefore, most important to see in the treatment of those cases where the acidity of the gastric juice is below par, that if the percentage in the food is not sufficient, the amount as a condiment or medicinal agent must meet this deficiency. While the use of sodium bi-carbonate will effect the same purpose temporarily by stimulating the acid excretion, no true elements to the formation of this acid are furnished, and the body is obliged to rob other parts of their normal percentage. As the functions of the stomach are better understood, the work formerly delegated to this organ has greatly decreased, and while it holds a secondary place in the preparation of proteid for absorption, the action of NaCl

continues and effects some of its most important offices after the material has passed into the intestines. Therefore, by a recognition of what is accomplished by this salt, not only gastric but also intestinal digestion can be greatly heightened. In an extensive experience with derangement of food absorption by infants, the author has studied the effect of administering this salt in cases of inanition, constipation, and lowered bodily oxidation.

It seems to be a most common thing for some physicians to advise the use of certain brands of condensed milk for infants denied the privilege of breast feeding, in preference to the best quality of cows' milk, which is, fortunately, easily obtained in our large cities. Most of the specimens of such condensed milk on the market contained from 26 to 50 per cent of sugar, usually cane sugar. From the ingestion of such large quantities of CHO elements, the normal proteid oxidation was disturbed by the natural selection of oxygen for the more easily oxidized carbo-hydrates, and toxic poisoning was one of the results. The hepatic functions seemed to suffer first, and the ferments produced by glands so poorly nourished soon followed. But one result can happen in the presence of such conditions, namely, deficient osmosis or absorption of the much-needed nutrient pabulum. These cases suffered from persistent constipation, lowered vitality, and a number of symptoms commonly denominated as the result of marasmus. Marasmus, as it is known pathologically, is an entirely different disease from this impaired condition of the absorptive functions of the child. If the requisite predisposition to the disease of the mesenteric glands is present, with a lowered vitality from deficient proteid absorption and an imperfect metamorphosis added, marasmus in its pure form is developed.

This condition, when understood in this light, certainly suggests its own treatment. If we at once stop the enormous and useless expenditure of oxygen by substituting cows' milk, in which the percentage of sugar is not so high and the amount of the tissue-forming

factors in it is proportionably greater, we can heighten bodily nutrition and prevent the formation of antecedents to complete proteid metamorphosis and their consequent toxic influence on the body. If we are to insure a corresponding improvement in the formation and power of the ferments and the necessary condition of the tissues and intestinal functions, which favors absorption, we must imitate nature, and supply to the organism an abundance of NaCl. A definite quantity (3-10 grs.), should be given with each feeding, with plenty of water, so that it has therefore become the practice of many physicians to order that a "pinch" be added whenever the child is fed.

It is astonishing to see how quickly poorly-nourished children will increase in flesh and power to retain and utilize their food. The constipation when once corrected gives place to natural movements, and seemingly hopeless cases of inanition are saved.

The power by virtue of which the albuminous substances of the body are soluble is in the presence of Sodium chloride alone. The globulins, likewise, are insoluble in water alone, but in a 65-per-cent solution of this salt both are readily dissolved. The presence of NaCl in the tissues does not cause any alterative effect beyond the solvent power spoken of above, and in the osmotic interchange between the intercellular fluid and the blood and the lymphatic circulation. However, these are the processes which take place in tissue change, and when this salt is given, metamorphosis is increased, as is shown by an increase in the amount of urea excreted. VOIT considers that the alteration is probably due also to an increase in the circulation of the fluid through the tissue. However this may be, we must not forget that the different solubilities of various albuminous elements, in solutions of this salt of certain strengths, should be considered. That the presence of the Sodium chloride in the body increases tissue change, and improves the condition of the blood, is unquestioned.*

* MOLESCHOTT recommends that those poor in blood should partake freely of salt with their food, because it favors, directly and indirectly, the restoration of the blood corpuscles and plasma.

So long as the habit of eating largely of the vegetables remains, the use of Sodium chloride as a medicinal agent in certain conditions which follow their ingestion is indicated. We have spoken of the increase of metabolism and excretion of urea from the use of this salt, and when these occur the potassium salts in the urine are also increased. These K salts also increase the excretion of Na, and good authorities state that between salts containing no chlorine, such as carbonates and phosphates, and the NaCl of the blood, a double decomposition takes place, Potassium chloride and Sodium carbonates or phosphates being formed. This additional formation is not needed by the organism, and only robs it of a number of Cl and Na elements. People whose diet is largely vegetable take into the system an excessive quantity of the potash salts, with the above results, and consequently they suffer from all the symptoms—usually in but a slight form—incident to the withdrawal of NaCl from the body. This is but another argument in favor of a diet composed largely of the proteid elements. A few of the conditions which give us the most important indications for the medicinal use of NaCl have been pointed out, and suggest to us the great utility of keeping the normal percentage present in the body at all times by its use as a condiment in health, or as an agent for the restoration of functional derangement.

If we cannot educate our patients to use such a diet as shall give to the body nutritive pabulum in which all the elements, organic and inorganic, are in a proportion to insure normal vital action, we must resort to artificial means to supply the deficiency, and give NaCl a most important place in our list of medicinal agents.

162 St. John's Place, Brooklyn.

CAFFEINE, in hypodermic daily doses of 15 grains, is reported by Dr. MERKLEN to have produced good results in *pneumonia of diabetics*.

RATIONAL DIETETICS:

STUDIES FOR "MERCK'S BULLETIN."

FOOD VALUES.

III.

OATMEAL AND MILK DIETS.

The discussion of the utility of the oatmeal and of the milk diet brings forward two of the most important kinds of food-stuffs used by mankind.

First let us consider the oatmeal, which has been so highly lauded by some and equally as strongly condemned by others. Let us determine if possible just what the true position of oatmeal is among the food-stuffs, both from the theoretical and the practical side of the question.

COMPOSITION OF OATMEAL.

By turning back to Table I, on p. 96 of MERCK'S BULLETIN, it will be found that oatmeal contains 12.05 parts of water, 12.15 parts of proteid bodies, 67.00 parts of starch, sugar and cellulose reckoned together, 6.55 parts of vegetable fat, and 2.25 parts of saline elements for every hundred parts.

AMOUNT REQUIRED DAILY.

Assuming—as has been done in all the previous computations, as applied to the meat diet, the mixed, the vegetable, and to the rice diets,—that 130 grammes [4.19 ounces] of proteid matter are necessary to maintain the constructive forces of the body for 24 hours. It is found that by taking 34.5 ounces of oatmeal the 130 grammes (4.19 ounces) of proteid matter will be introduced into the alimentary canal daily. Along with this there will also be introduced 2.25 ounces of vegetable fat; 22.78 ounces of starch, sugar and cellulose, and 0.77 ounce of saline compounds.

By assuming that all the starch, sugar, cellulose ultimately become a diffusible glucose which is finally utilized by the system, the highest possible utility is accredited to the oatmeal.

With this understanding of the composition, the amount of oxygen required, and the maximum amount of energy that can be obtained

from a diet of oatmeal can be computed both theoretically and practically.

OXYGEN REQUIREMENT.

The number of oxygen units required to completely oxidize the fundamental proximate principles of thirty-four and a half ounces of oatmeal is found to be 32,768. As in all the preceding computations in which 130 grammes of proteid matter was used, the amount of urea, uric acid, creatinine, carbon di-oxide, water, and sulphates appearing in the excretions as the end products of *proteid* katabolism is the same as noted in the former examples.

The *total* amount of carbon di-oxide, however, that has to be eliminated when living upon the exclusive oatmeal diet is 15,148, while the meat diet yields only 14,300 CO₂ units.

The amount of water developed in the two instances—the oatmeal and meat diets—is 12,363 units of water from the former and 11,765 from the latter.

Comparing the quantity of oxygen used in the two instances, the relative proportion of the end products in the two cases is the same so far as the nitrogenous end products are concerned; but considerably larger amounts of carbon di-oxide and water are produced by the system when fed alone on oatmeal.

HEAT AND ENERGY PRODUCED.

The next important question to be settled is how much heat and energy the complete utilization of all the constituents of 1104 grammes [34.5 ounces] of oatmeal is capable of producing for the system.

By applying the same rules and laws as have been used in determining the value of all the other food-stuffs computed, it is found that these 1104 grammes [34.5 ounces] of oatmeal will yield 712,582 kilogramme-metres [5,154,105 foot-pounds] of heat reckoned as energy.

This as will be found by comparison, corresponds very closely, in the amount of working power produced, with that developed out of the pure meat diet, composed alone of an animal proteid and fat. Noting the difference in the amount of oxygen expended in both instances, the comparative total results are practically the same.

All these calculations have been based upon the full percentage composition of all the proximate principles constituting the food compound computed. That is, that the total amount was completely digested and absorbed. Also, the assumption was that no more energy or oxygen was required to digest and prepare the one for absorption, than obtained for the other.

This, however, is not the case. In preparing the oatmeal for absorption more energy and oxygen have to be expended, in producing the ferment bodies by the action of which the starch, sugar, and cellulose can be transmuted into a diffusible glucose capable of being absorbed.

When using the meat diet, all this outlay of oxygen and energy is avoided.

PERCENTAGE COMPOSITION ABSORBABLE.

Experiment has further shown that fully twenty per cent of the proteid proximate elements entering into the composition of the oatmeal cannot be digested and absorbed. Very little if any of the cellulose can be converted into a diffusible state. Therefore the total quantity of oatmeal required, to enable the vascular system to absorb the percentages figured upon, necessitates the ingestion of at least fifty ounces of oatmeal per day.

When this large quantity of oatmeal is ingested, if any one will take the trouble to examine the stools, he will find that a large amount of the oatmeal has passed through the alimentary canal absolutely unchanged.

In fact, one of the most able American teachers of *Materia Medica* and *Therapeutics* once made the remark, "That oatmeal was only to be taken for its indigestibility and irritancy, and consequently could be used as a valuable

laxative agent but not as a nutritive compound."

PRACTICAL VALUE.

With all this accumulated evidence it becomes clearly apparent to an intelligent mind, that—even though the composition of oatmeal is such, that it can be introduced into the alimentary canal in sufficient quantities to theoretically supply the full amount of constructive material, and at the same time yield nearly the exact required amount of heat and energy—the human system is not constructed in such a manner as to be able to appropriate out of this substance the necessary supply for the most perfect health and nutrition.

When oatmeal is taken alone or even enters largely into the diet, the digestive forces are constantly overtaxed, the alimentary canal is continually in a state of irritation; and suboxidation with all its ill effects must in time of necessity follow.

ILLUSTRATIVE CASE.

One instance out of hundreds is cited in illustration of this point. A young Scotchman, born of strong and robust parents and living in the healthful country, was brought up largely upon oatmeal and maple syrup. As he reached the latter end of the teens and approached the early twenties, "dyspeptic" symptoms developed and increased in severity. Believing meat to be injurious, he traveled from place to place seeking aid and hoping for relief, but all the time following largely the dictates of his palate and living chiefly upon vegetable compounds to the exclusion of the animal class of food-stuffs.

The urine was loaded with uric acid most of the time, which, however, was frequently obscured by the phosphates which so frequently preponderate in the vegetable compounds. This led to the supposition at times that he was suffering from the condition known as the "phosphatic diathesis."

After twelve years of wandering, in the vain hope of discovering a beneficial climate or of securing the line of medical advice and treatment that would restore him to perfect health,

he was finally ordered to use an exclusive skimmed-milk diet, together with some agents to remove the old and deteriorated bile from the system,—followed by the administration of some new bile in the form of the *Fel bovis inspissatum et purificatum*, to replace the old and useless bile which had been forced out of the system by the action of the active chologogue agent previously taken.

INDICATIVE CHANGES IN URINE.

The result of this line of treatment when rightly adjusted was a progressive rise in the amount of urea excreted, which had previously been abnormally low. As the urea increased in quantity, there was a corresponding decrease in the uric acid, urates, and other by-products found in the urine.

With this pronounced change in the urine from a badly abnormal state to that of a more normal composition, all his bad symptoms rapidly disappeared and perfect health was secured.

A noticeable fact in such cases is that the improvement in symptoms follows exactly in proportion to the improved composition of the urine.

From the skimmed milk diet he passed to the ordinary milk diet, then to eggs and meat and finally to a well-regulated line of proteid and fat food-stuffs.

Such evidence as this, of which there is an abundance, can hardly be ignored, and it shows conclusively what can be done by intelligently applying the laws of physiology and physiological chemistry in the selection and regulation of the food-stuffs taken, both as regards quantity and quality.

The positive and rapid changes in the urine from the markedly abnormal condition to that recognized by all as a normal standard, is always proof positive of improvement in the nutritive condition of the system, and cannot justly be denied.

MILK DIET.

The study of milk as a food-stuff is the most important of all dietetic questions.

It is the first food given to all kinds and

classes of human beings, and to a very great extent milk is the primary food-supply of a large class of animal life.

COMPOSITION OF MILK GENERALLY.

The composition of milk both human and of cows, which are the two kinds most commonly in use, varies very much. No absolute percentage standard can be given, for the composition necessarily varies with the nutritive tone of the animal producing the milk. The composition will also be modified by the quality and amount of food-stuff taken, the period of lactation at which the analysis is made, the nervous condition of the animal, etc., etc.

Consequently as we turn from authority to authority, or from analysis to analysis, the actual composition given for milk is constantly varying; still with all this there is a general and pretty close comparison in all instances.

After a careful review of all these possibilities the composition as given in Table I in the February number of *MERCK'S BULLETIN*, p. 96, was selected as giving a pretty close average of the sum total of all observations recorded.

COMPOSITION OF HUMAN MILK.

The composition of human milk in this table is as follows: In every 100 ounces of milk 88.28 ounces of water; 3.41 ounces of proteid matter which includes both the casein and all the other forms of albumin found in the milk; 3.48 ounces of fat; 4.62 ounces of milk-sugar and 0.21 ounce of mineral salts. In other words, milk is a complete mixed diet.

AMOUNT REQUIRED DAILY.

Figuring upon the quantity required daily in the adult by way of comparison between the value of human and cows' milk (to be discussed later in the series) it at once becomes apparent that 100 ounces of milk will not furnish the required amount of constructive material. But by taking 125 ounces [3887 grammes] the requisite amount of proteid elements is supplied; that is, the 4.19 ounces or 130 grammes of proteid matter. There will also be introduced into the system 111.42

of water, 4.35 ounces of fat, 5.87 ounces of milk-sugar and 0.26 ounce of the mineral compounds.

ABSORPTION OF FOOD-STUFFS.

As a small percentage of the proteid substances is not digested and absorbed, to secure the above amounts of each proximate element in the circulating medium of the body, a few more ounces must be ingested. But in the case of milk the increase is exceedingly small as compared with vegetable compounds, because actual experiment has proved conclusively that under favorable circumstances 98% of the proteid substances are completely digested and absorbed.

The same holds true for the fats and mineral compounds.

With regard to the sugar and its final destiny the exact result is not so absolutely established. The final disposition, however, is of minor importance, because it does not enter into the constructive composition of the animal economy and its yield of heat and energy is comparatively small.

A portion of the sugar passes off with the *fæces*, while some of the saccharine compounds are unquestionably decomposed within the alimentary canal into alcohol-like compounds and carbon di-oxide. The latter compound helps to distend the small intestine and thus aids in the mechanical or peristaltic action of the intestinal wall.

The concentration and almost complete absorption of the proteid and fat elements contained in the milk necessitates some such distention of the gut, otherwise the lumen of the intestine would become too much contracted and the surface area for absorption greatly diminished, and an atonic condition of the muscular wall would be induced.

TRUE NATURE OF MILK DIET.

Viewed in this light, when the blood stream is finally reached, the milk, like the meat diet, becomes almost exclusively a proteid and fat diet with its inorganic salts and water.

The period during which the human system is compelled by necessity to live upon this ex-

clusive milk diet, is the time in which the largest amount of constructive work is accomplished, both in reference to the soft parts and bones.

It naturally follows, if the growth and development is so effectually and well accomplished upon milk alone, the composition of this fluid must come very close to the most perfect demand of nature.

During intra-uterine life, the growth and development is exclusively effected out of the proteid and fat, and presumably out of the proteid alone; which helps to sustain the theory that all the fat of the system is developed out of the proteid elements, and shows that all the fat which is ingested as a fat is oxidized into water and carbon di-oxide, yielding heat and energy.

Assuming therefore that the above percentage composition, inclusive of the sugar, has finally reached the blood stream and become available, the following results are obtainable.

AMOUNT OF OXYGEN USED.

The total amount of oxygen required for the complete oxidation of the 125 ounces, [3,887 c.c.] of milk is 41,347 oxygen units. 18,070 of these oxygen elements are expended in the conversion of the proteid substances into the 520 units of urea; the 130 of uric acid; the 260 of creatinine; the 7,150 of carbon di-oxide; the 4,940 of water and the one H_2SO_4 element. 21,129 oxygen units are expended in the conversion of the fat into its complete product, carbon di-oxide and water, and only 2,148 are required for the complete transformation of the glucose elements.

TOTAL AMOUNT OF WATER PRODUCED.

The total amount of water generated by the oxidation of the proximate elements of the milk is considerably larger than is obtainable when living upon a meat diet of proteid and fat exclusively;—the milk diet yielding 13,002 units of water, while the meat diet produces only 11,765 H_2O units.

This fact of the milk producing a much larger manufactured quantity of water than the meat, or other forms of food-stuffs, together

with the larger percentage of water in its original composition, naturally makes milk not only a valuable food but gives to it absolute therapeutic values, which will be enumerated in detail at the end of this section devoted to the consideration of the milk diet.

TOTAL AMOUNT OF CARBON DI-OXIDE.

The total amount of carbon di-oxide generated by the complete oxidation of the constituents of the milk, like the water, is larger than occurs when upon a meat diet;—the milk producing 15,649 carbon di-oxide units, while the meat furnishes only 14,300.

Thus it is established, that human milk easily carries into the system the fullest quota of available constructive proteid material, and yields as the result of its complete katabolic metamorphosis only the normal and standard amount of nitrogenous excretory elements.

The quantity of oxygen used is somewhat larger than is required for the simple and pure meat diet. This fact, alone, illustrates the reason why mere milk for continuous use is not the most available of all forms of diet at all ages and under all circumstances.

HEAT AND ENERGY PRODUCED.

Applying now the same computations to the milk as has been done with all the other kinds of food-stuffs, it is found that the 125 ounces [3,887 c.c.] of milk, will furnish to the system 806,721 kilogramme-metres [5,885,012 foot-pounds] of heat and energy;—while the meat diet yields only 739,890 kilogramme-metres [5,367,016 foot-pounds].

Referring back to MCKENDRICK's estimate of the quantity of energy lost by the system daily, it is found that he made the mechanical working of the body for the twenty-four hours 807,100 kilogramme-metres [or in round numbers 5,800,000 foot pounds, but actually 5,837,754 foot-pounds].

PRACTICAL DEDUCTIONS.

There are as a result of all these estimates and computations some very interesting data developed, that can be practically applied to the intelligent regulation of the diet both in health and disease.

It must be admitted by all that milk practically accomplishes most successfully the growth, development, and maintenance of animal life during infancy and youth.

It has also been proven that adults can live fairly well for years upon a pure milk diet alone, but not as successfully as upon a meat diet, or better still, the well-regulated proteid, fat, and saline food-stuffs.

In disease, when nature's powers are taxed to their utmost capacity, milk alone is the standard diet.

MCKENDRICK has most ingeniously estimated the energy loss of working power sustained by the various organs and the body as a whole per day.

These computations, instituted as they have been upon the atomic composition of the food-stuffs and their complete oxidation within the system, have shown the amount of constructive formation, heat and energy or working power that is developed by digesting and assimilating this 3,887 c.c. of milk.

In reviewing these deductions it is found as the complete result, that the milk furnishes the exact amount of constructive material, and develops the normal quantities of nitrogenous excretory products. It also yields about the same amount of heat, energy or working power as MCKENDRICK estimated was lost by the system daily. Therefore the one helps to prove the correctness of the other and *vice versa*.

Consequently every-day practical observations are sustained by this theoretical study of the chemico-physiological laws which are known to govern the animal mechanism.

Or turning the proposition around, the theory has been found to confirm almost exactly the every-day, practical, and indisputable experience of every careful observer.

But it has also carried the science a step further and elucidated much that heretofore was uncertain and doubtful.

Further than this, these observations have established a practical theory upon which a further study and investigation of the practical

utility of the food-stuffs can be successfully followed.

By an intelligent and accurate application of these laws, and knowing the composition and greatest utility of each food-stuff, its proper usefulness in each diseased condition can be accurately and concisely stated. Also the amount of oxygen required to oxidize each and every food-stuff can be definitely computed.

NECESSITY OF URINARY ANALYSIS.

To this must be added a thorough knowledge of the normal composition of the urine and how to determine and correctly interpret the abnormal and by-products found in the urine. When this has been accomplished, by knowing the most available food-stuffs to use and how to select the correct medicinal agent to aid the digestive system and the assimilative powers of the body, rapid changes from disease to health can be effected.

Simply testing for albumin, sugar, and casts is a thing of the past. A careful and compara-

tive determination of the relative amount of urea to the uric acid and other by-products must also be made. The chemical transformations developing between the organic acids, uric acid, and the inorganic compounds *after the urine has been voided*, must be ascertained and carefully recorded from time to time.

In connection with this, the examiner of the urine must be cognizant of the amount, composition, and quantity of food ingested.

When all this is successfully accomplished the physician knows exactly what the digestive and nutritive condition of his patient is, and can follow the improvement or retrograde changes in his patient almost with mathematic accuracy.

These results have been attained by some clinicians, and the uniform results which they attain in the management of some of the most obstinate cases is almost phenomenal.

Having mastered the practical utility of the human milk, the practical utility of cows' milk will next be estimated.

PROFESSIONAL VIEWS

ON MATTERS OF PRACTICE.

STERILIZED DRESSINGS.

{ 106 Rathenower Str.,
BERLIN N.W., March 9, 1892.

TO THE EDITOR OF MERCK'S BULLETIN:

It might be interesting to record a novel form of *subdivision and packing* for Sterilized Surgical and Gynecological Dressings, as lately introduced in this market at my suggestion.

It often happens that, in cases where but slight surgical interference has been necessary, the scissors with which the gauze to be used is cut, or the hands that tear apart the cotton, are not perfectly disinfected, so that pathogenic micro-organisms can easily get into the dressing-material and thereby render the previous sterilization of the latter void. Again, it does not follow that such sterilized material will always remain sterile. For example, the cartons in which it is usually packed may easily receive a break, and if the package is acci-

dentally placed on a wet table, the pasteboard wrapper soaks off. These two latter accidents offer a ready means for the new access of germs to the originally sterilized dressing-material.

Furthermore, there exist, true enough, sterilized cotton and sterilized gauze, but no sterilized packages in which *every* requisite to a *complete* dressing—for instance, iodoform gauze, absorbent cotton and a bandage—is contained. We are, therefore, usually compelled to use part of *two* packages of sterilized material in applying a single dressing—thus leaving the unused portions thereafter open to pollution.

To obviate this danger, there have now been prepared strictly sterilized dressings, in packages *each* containing *just enough* of each of the various dressing-materials for *one complete dressing*—special packages for special cases. For instance, package No. I, for tamponing the uterus and receiving the lochia in confine-

ment—contains a strip of 4% salicylic-acid gauze 5 metres long and 10 centimetres wide and arranged in four layers, and 50 grammes of salicylated cotton; package No. II, intended for uterine and vaginal tamponade in miscarriages—contains 1 gramme of powdered iodoform, two strips of 20% iodoform gauze 5 and 10 metres long respectively and 3 centimetres wide, and 30 grammes of 4% salicylated cotton. And so on, through the entire list of: Head-and-neck, Finger, Hand, Fore-arm, Upper-arm, Shoulder, Chest, Foot, Leg, Thigh, Hip, Abdominal dressings, etc., etc.,—a special package being provided for each of these purposes, containing all the materials needed for one dressing in each instance.

Added hereto are a number of *supplementary* packages of various sizes desirable in practice. All the materials indicated can be had, as may be desired, in *simple sterilized* (aseptic) or in *impregnated and sterilized* (antiseptic) condition.

Thus, the preservation of partly-filled packages and the consequent possibility of the same becoming polluted, are done away with.

I am, sir,

Faithfully yours,

A. DÜHRSEN, M. D.,
*Privatdocent.**

SURGICAL AND OTHER USES OF PYOKTANIN.

A.

TO THE EDITOR OF MERCK'S BULLETIN:

The remarkable success of PYOKTANIN (blue) in some of my surgical and gynæcological cases render it a matter of justice to report them, or at least such typical cases as may serve to exhibit the power of the drug.

The first case I mention was a compound fracture of the radius, the end of which protruded through the skin; of course the ulna was also fractured. After reducing the fracture I inserted a pencil of PYOKTANIN into the wound, and bandaged in the usual way. Not a parti-

cle of pus was formed, and the compound fracture was transformed into a simple one, which soon healed.

In a case of recurring sarcomatous tumor of the cavity of the eye, an application of the PYOKTANIN pencil prevented a recurrence.

The most remarkable of my cases was the enucleation of a large epithelioma of the uterus by the method which I described last year in the *Pacific Medical and Surgical Journal*. After the removal, a cavity large enough to contain a goose egg was left in the uterus. I applied the PYOKTANIN pencil freely to the wall of the cavity, with the effect of removing the previously existing fetor, and producing contraction. No further discharge occurred, and after four applications, with a few days' interval between them, the vaginal vault was wholly cicatrized, and after the next menstrual period, which was perfectly natural, the patient was discharged cured.

J. N. WYTHE, M.D.*

Oakland, Cal.

B.

TO THE EDITOR OF MERCK'S BULLETIN:

I wish to report four cases wherein I have used PYOKTANIN.

I consider PYOKTANIN (blue) of most value, surgically, in fresh or recent wounds. However, I have had decided success with its use in chronic ulcers, but not such brilliant results as in recent wounds.

Case I.—On January 13, 1891, Mr. H. W. presented himself to me with his right cheek horribly lacerated from the explosion of a shotgun. It seemed as though all the surrounding bones of the face were more or less injured. All the teeth were exposed on that side, the flesh terribly contused and powder-burnt. After picking out spiculæ of bones and debris, I dusted the entire wound full of PYOKTANIN, then sewed the torn pieces in apposition as well as possible, bandaged with simple and light dressings, and sent patient home, to report next day.

* Lecturer on Obstetrical Surgery and Gynæcology at the BERLIN UNIVERSITY.—[ED.]

* Professor of Histology, COOPER MEDICAL COLLEGE, San Francisco.

The following day everything seemed doing so well, I did not disturb the bandage at all. It remained for 21 days, after which time the dressing was removed, and behold—union everywhere by first intention; not a drop of pus. A perfect recovery followed, with considerable deformity and large scars.

Case II.—Miss K. F. has suffered for fifteen years with attacks of facial erysipelas.

I was called on June 18, 1891, and found erysipelas, much swelling and an almost unbearable neuralgia. Tried PYOKTANIN (blue), 1:500, locally applied with camel's-hair brush every 4 hours. Called next day and found patient up and around the house. Patient declared pain left within 20 minutes after first application. There was some difficulty in removing the color of the drug from the skin, but the cure was perfect.

Case III.—Mrs. Emma D., æt. 51, had been treated for 21 years for enlarged glands of right side of neck. She had taken internal medication, external application, and had the glands opened time and again; but of no avail. I aspirated each abscess-cavity and injected therein solution PYOKTANIN (1:500). I also injected same solution into the indurated portion of the gland in five or six other places. Result: Glands softened, absorbed; and, with exception of a few ridges, the touch can discover no abnormal condition. Patient says she is better than she has been for 20 years. I will add that I repeated the injections several times thereafter in portions requiring it. The swelling is entirely gone.

Case IV.—On October 21, 1890, I removed a supernumerary shoulder and arm from an infant three hours old. The wound resulting was about six inches across. At first I used iodoform; but the infant had spasms so violently that I used PYOKTANIN (blue) for the second dressing. No spasms followed. On the fifth day I used iodole; but the spasms recurred. I then used PYOKTANIN continuously. No pus nor pain, rapid healing, and a perfect recovery.

C. M. BALFOUR, M.D.

Morrill, Kan.

C.

TO THE EDITOR OF MERCK'S BULLETIN:

On July 10, 1891, Mr. E. A., aged sixty-four, asked me to look at a tumor on his lip, saying that it had been steadily growing for about six months, and that he had consulted some eight or nine physicians, who all pronounced it carcinoma. I examined it, and found a tumor two inches long from left angle of mouth past median line, and one and a half inches thick. The centre was a dirty, ulcerated-looking mass, the edges reddened, and the lip very much everted. There was a good deal of pain in the tumor, which extended to left orbit and angle of jaw.

I proposed putting-on a plaster of MARS-DEN's paste; but the patient objected. I then cleaned off the surface and applied a solution of blue PYOKTANIN (1:100), and asked him to come back next day. Next morning he came in saying: "The pain is all gone, and that stuff is going to cure me." I then injected $\frac{1}{4}$ x of a 1:100 solution and applied a 1:20 solution externally, and asked him to come back in two days; which he did, when I could notice quite a shrinking and softening of the tumor. I then continued the 1:20 solution externally every day, and injected the 1:100 solution once or twice a week until the 10th day of September, when the tumor was all gone, but the surface still raw. At this time Mr. A. left Fairhaven for Oregon, without letting me know anything of his whereabouts until November 6, when he walked into my office smiling and saying: "I am all right." The lip is healed over and Mr. A. is feeling well.

Had I used the injection every day or every other day, I believe the tumor would have disappeared in half the time.

A. B. MCKINNON, M.D.

Fairhaven, Wash.

OPIUM EXTRACT $1\frac{1}{2}$ grains, Belladonna Extract $1\frac{1}{2}$ grains, Quinine Sulphate 24 grains, made into 24 pills, 1 to be taken every 3 hours, is recommended by Prof. PARVIN in *neuralgic dysmenorrhœa*.

CLINICAL PAPERS

ON LIVE TOPICS.

DISEASES OF THE RECTUM.

By CHRISTOPHER HEATH, F.R.C.S.

[Read at the UNIVERSITY COLLEGE HOSPITAL, London.]

Ordinarily the rectum performs its functions without any disagreeables, and when one has a healthy evacuation of the bowels, there is a feeling of relief which is somewhat remarkable. That evacuation, of course, should be perfectly painless, and in the great majority of instances it is so; but we find that patients will complain in the first place that they cannot get the bowels open, and then perhaps they will say that when they have had them opened they suffer such pain that they dread every operation.

With regard to the question whether a daily action of the bowels is essential to good health, no doubt, with the great majority of persons, a daily action is a necessity; but still we meet with people who are a little different in that respect, and will go two, or even three or four, days without evacuation and without any discomfort. It is of no use, where we have torpid bowels and a weak condition of the muscular fibre generally, such as we meet with, for instance, in elderly females and anæmic persons, to try and force them by violent purgation into the ordinary daily habits of healthy people. Of course, if we take a healthy person, we have there a standard, but we may find variations from it for which we must be prepared. As to the time at which the bowels should be opened, that of course, in many cases, is a matter of simple convenience. The busy man, going off to catch a train immediately after breakfast, had better have his bowels opened at night; but a person who has a little leisure, and, moreover, is able to enjoy that matutinal pipe, which, I am told, is so extremely useful in producing an alvine action, may well repair to the water-closet after breakfast. Patients who have anything the matter with the rectum, or who suffer in any way upon

the discharge of fæces, should, as a rule, have their bowels opened at night; and the reason is obvious. The action of the bowels takes place more conveniently after they have undressed: that is an important point in connection with women who wear tight stays—when they are in their dressing-gowns or night-gowns they have much more power to empty the bowel than at any other time, and immediately after they have done so, they can repair to bed, where they can lie in a horizontal position for eight or ten hours, so that any little inconvenience, any disarrangement of the vascular supply of the bowel passes off, and in the morning they are quite well.

The difficulty which many persons experience in getting rid of a mass of fæces which has been lodged in the upper part of the rectum and become a little inspissated and hard, can be got over entirely by pressure with the finger just beyond the tip of the coccyx. There is plenty of room between the tip of the coccyx and the anal orifice for the finger to be pressed against the rectum, and we will find that the hard motion which has lodged in the rectum is pushed out through the sphincter, and being once through it, is promptly passed, and the softer matter follows easily enough.

We must be prepared sometimes to find that a woman who is having apparently a healthy evacuation daily yet retains in the upper part of the rectum large masses of fæces in the shape of balls. I am quite sure this is much more common than is generally supposed. I have met with it many times, and always in women, generally elderly women; they complain that they are never comfortable, that they never get that feeling of relief they should have, but are always straining and bearing down almost as if in labor, and at last matters come almost to a stoppage. It then becomes a question of clearing out these hard balls of fæces with a lithotomy scoop or

the handle of a tablespoon, which will do in an emergency. In that manner we can evacuate the bowel in a way that the patient cannot do herself. It is quite worth while, then, when a woman complains of uneasiness about the rectum, to put the finger up so as to make thoroughly sure that the upper part is not blocked with these balls.

Suppose, now, that a patient complains that every time he has an evacuation he feels pain, and that the pain lasts for an hour or two afterwards, and is really so bad that he dreads every evacuation. We may at once say in such a case that the patient is suffering from fissure, though the patient very likely thinks he has piles. Now a fissure, in the great majority of cases, is, I believe, a tear; the patient has happened to have a very hard motion, which has been forced through the sphincter, and has distended the part, and torn the mucous membrane. This is, no doubt, the explanation of the formation of a fissure in most cases. In addition to that there may be, if it is a long-standing case, a little ulcer above the sphincter which communicates with the fissure. But, presuming that it is a comparatively recent case, and simply a fissure, if we look at the anus, we will see a little crack running up through the mucous membrane; and if we put in our finger, which should of course be greased, the sphincter spasmodically contracts; but if we gently insinuate it with a twisting movement, we will at last pass through, giving the patient considerable pain, but we will ascertain that we have there the crack running up the anus through the mucous membrane not only, but going down to the fibres of the sphincter. Of course there is nothing so good as a finger for ascertaining this, but if we have any doubt, we can use a small bivalve speculum, which is introduced closed, and is then opened so as to bring the aperture opposite where we think the crack is, and we can then see the fissure running up through the anus.

These cases of fissure are very often of long standing, and in that case we very commonly find that there is a little mass of granulation

protruding into the fissure, sometimes wrongly called a polypus. We should always look for that, because it is important to remove it. The reason why a fissure is so excruciatingly painful is that it runs down to the fibres of the sphincter, and when the fæces pass they irritate the fissure and the sphincter, and there is a spasmodic contraction of the muscle, which is exceedingly painful, so that the patient tells us that he is obliged to lie down for a couple of hours after an evacuation, and that he feels sore for some time. These cases are very readily cured. If it is a recent fissure, and if the patient is in delicate health, say a pregnant woman, we may not care to do more than apply something locally to the fissure, and if it is simply a superficial one, I know nothing better than some form of belladonna,—either belladonna ointment, or, what is rather nicer, an ointment made by mixing a grain of atropine sulphate and half an ounce of lard. That makes a good ointment, not too strong for use, and it relieves the patient very much, and seems to help the part to heal up. But it must be a very slight case for that to cure it. The same thing may be said with regard to silver nitrate. It will cure fissure if we are very careful. If we have a sharp-pointed stick, and then through a speculum draw it down just into the fissure, so as to go quite to the bottom, it may be possible to cure it.

But I strongly advise, in most cases of fissure, that we do something a little more active. The best thing is to over-dilate the sphincter. If we over-dilate the sphincter, we no doubt tear a few superficial fibres, and thereby paralyze the muscle a little, and the consequence is, we cure the fissure. The simplest way is to put two fingers, or better, two thumbs, into the anus, and, grasping the buttocks, then draw them apart. As it is painful, it is well worth while giving an anæsthetic; but it is not a long operation, and does not confine the patient to bed. If kept quiet for a couple of hours he will be much relieved of pain, and the first time there is an evacuation there is no pain at all. Another way is to

notch the sphincter with a bistoury. That is a thing which in the early part of the century was made a very serious operation of by cutting through the whole sphincter, which is quite unnecessary. It is quite sufficient simply to notch and divide the superficial fibres of the sphincter. We pass a blunt-pointed bistoury with the finger into the rectum, turn the edge of the bistoury to the fissure, and withdraw the knife and finger together. Some prefer that operation, but I do not think it makes much difference which we do. It is well, however, sometimes to be able to assure a nervous patient that there need be no cutting operation.

With regard to the little ulcer which occasionally exists within the bowel in connection with a fissure, there is no doubt that in that case division is best, because the bistoury is carried through the ulcer, and it cures both it and the fissure. But if there is an ulcer the case takes longer to heal; we must keep the patient in bed a week or ten days, because the cut has gone through the ulcer.

Another thing frequently complained of is *pruritus ani*. The patient will tell us that he is worried to death by itching about the anus; that it comes on as a rule at night when he gets warm in bed; that he loses his rest, and that his health is thereby considerably interfered with. There are various causes for *pruritus ani*. It is well to remember that there may be some local cause which can be got-rid-of at once. One of the common causes of *pruritus ani* in children, and sometimes in adults, is the presence of *ascarides* in the rectum. Within the last few years the views about *ascarides* have changed a great deal. It used to be thought that they lodged entirely in the rectum, and that we could cure the patient by copious enemata, usually of salt and water. But it has been shown within the last few years that this is not a fact, and that these *ascarides* have their habitat mainly in the cæcum, and are to be found more or less throughout the whole length of the large intestine. We must bear in mind, then, that it is

not sufficient simply to attack the rectum with enemata, but we must give purgative medicine also, which shall act upon the cæcum and clear away the worms themselves and the mucus in which they are lodged. We often see them coming away in large balls in consequence of the purge, until they have been thoroughly cleared out we cannot hope to cure the patient.

Another thing to bear in mind is that we may occasionally have pediculi. The *pediculus pubis*, the ordinary crab of the pubes, if it, exists, may find its way readily round to the anus. It is therefore well worth while to make an inspection both of the pubic hairs and of the anus, to see whether or not you can detect the *pediculus*, which, as may well be seen with a magnifying glass, bears a close resemblance to an ordinary crab. If once made out, this is readily cured. We can get rid of crabs by two or three applications of some mercurial lotion (such as the *lotio hydrargyri flava*, carefully soaked into the hairs), which will kill the pediculi; hot water and soap will then put matters right.

But unfortunately, as we know to our cost, *pruritus ani* does not always depend upon local causes. We find that a patient is perfectly cleanly and that no worms exist in the rectum, and yet he suffers almost agonies from *pruritus*. If we consult the authorities, we will find that every remedy that has been recommended has been tried with more or less success, which shows how little successful the remedies really are. For myself, I rather believe in lotions than in ointments. On the other hand I allow that sometimes ointments answer extremely well; but I think we get most relief, in the majority of cases, in the first place by attending to the general health (keeping the bowels regular, and so on), and then applying some sedative locally. Cocaine is not a bad thing to apply. A 5-per-cent solution of cocaine painted over the anus will often give great relief. Before cocaine was known we used hydrocyanic acid, which was extremely useful in the form of a lotion of dilute

hydrocyanic acid and lead. Opium and belladonna, atropine, and all the various sedatives have been tried from time to time with more or less success, and, I am sorry to say, with more or less failure. It is a curious thing, but we will find that patients sometimes go on for a long time suffering with this annoying and troublesome complaint, which no remedy seems to touch, and then they get well; but it does not always appear what it is that has cured them.

Then we meet, as we do everywhere, occasionally, with syphilitic affections of the anus. Children are brought to the hospital from time to time with distinct mucous tubercles about the anus. It is a little difficult sometimes to explain this occurrence, but I believe the explanation often is the ridiculous habit that mothers and nurses have of kissing the children all over. They are not particular what part of the child they kiss; and sometimes the unfortunate child's anus is inoculated in that way from the lips of the nurse. But we find cases that we cannot account for in that way. There is no doubt that from time to time we have mucous tubercles simply from vaginal discharges creeping round: I mean that a woman has mucous tubercles of the vagina, or labia, and the discharge runs back to the anus and produces mucous tubercles there. Occasionally we also find that persons get them from their bed-fellows. I do not mean by any outrageous bestiality, but that some contact with their bed-fellows has accidentally inoculated the part. Mucous tubercles are readily recognized as flat moist patches, and the only thing I will say about them is, that we must be careful, in treating them, to keep the adjacent parts from rubbing one against the other. If we have to treat mucous tubercles about the anus, it is best to apply some mercurial dressing which shall separate the two sides of the buttocks and prevent their rubbing together. I have always found that the best plan is to take a piece of linen, spread it with white-precipitate ointment, and tell the patient to fold it so that the ointment shall be outside,

and then to draw it thoroughly between the buttocks, so that the mercurial ointment shall come into contact with the anus and become rubbed into the system. It must be remembered that mucous tubercles are but a symptom of secondary syphilis, and if we find them about the anus, we may be sure that the individual has syphilis in his system, and their treatment will be only part of the general treatment of syphilis.

Then we find occasionally about the anus what are termed rhagades. There is hypertrophy of the skin of the anus with ulceration in the cracks between the folds, which is undoubtedly syphilitic, and should be treated very much like mucous tubercles. But we find occasionally that there are considerable outgrowths of moist skin about the anus which are commonly called "tabs." They are not really a disease, but are only a symptom, and wherever we see them, we may be sure that the woman—for they usually occur in women—has syphilitic disease of the rectum. We should at once introduce the finger, and we will probably find ulceration of the rectum of a tertiary syphilitic character, with very likely more or less stricture.

Again, a mother comes to us saying that her child's body comes down—that is the expression used among the poorer classes—and she at once assumes that it is a case of prolapsus. Cases of the "body coming down" are not all instances of prolapsus. Of course many are; but we should investigate the case for ourselves and take the trouble to put our finger into the bowel. In many cases we will find that there is a little pedunculated growth hanging there, which when the child strains comes through the sphincter or presents at the anus, and which is nothing more nor less than a polypus. These small rectal polypi are not uncommon in children, and the remarkable thing about them is that they generally cause some hemorrhage. Every time the bowel is opened there is some little blood noticed in the stools, and yet if we come to treat them by taking hold of them, with the nail and tearing through the ped-

icle, there is no bleeding, and the case gets well directly. If the pedicle is at all thick, it is wiser perhaps to put a ligature upon it; but if it is a simple polypus in a child, we may, without scruple, tear through the pedicle with the nail and bring the little vascular body away, without any hemorrhage. So much for polypi, which we occasionally find in young adults in whom they become more or less indurated, and, though they are not nearly so vascular, they are thought to be piles. The patient says he has piles, and that every time he goes to the closet the pile comes down, but when you see it, it is simply a pedunculated mass, which should be treated by putting a ligature round the pedicle and cutting it off.

True prolapse occurs both in children and in adults. In children it occurs most frequently, I believe, as the result of debility and also, no doubt, as the result of the bad habit which is so common, of allowing children to sit and strain their bowels after they have already evacuated, and at last they strain down the mucous membrane. These are really cases of prolapse. There may be a more severe condition, which we call procidentia, where the whole bowel comes down. That is more serious, and I will speak of it presently.

Prolapse may be a symptom of other disease. It is not very uncommon in cases of stone in the bladder to find a child straining at micturition and bringing down the rectum at the same time. It is therefore well to bear in mind that we may have another disease behind and to inquire whether the child has serious trouble in making water. But ordinary cases of prolapsus are the sequel simply of debility, the child is of weak habit altogether, and the bowel has got into the way of coming down on slight provocations. The main thing is to interrupt the habit, and if we can make the mother take a little trouble, we can break it readily enough. With a circular opening like the anus, very little will bring down the mucous membrane through it; but if we can get the mother to hold the child when it is going to have an evacuation and to

put the finger down the verge of the anus and draw on one side, and thus convert the circular opening into an elongated slit, then the mucous membrane is considerably puzzled to come down, and practically it does not prolapse. What I always promise mothers is that, if for one week they will take the trouble to do this and so prevent the bowel from coming down, the case will probably be cured. In addition to that little manœuvre, it is well, of course, to brace up the bowel by throwing in cold water with an enema-syringe, both before and after evacuation, and to give the child a tonic, particularly an iron tonic.

If the bowel comes down and is allowed to remain down for some hours, we may find it rather a difficult job to put it back. The shortest way is to give the child chloroform, then to manipulate the bowel and to return it with the piece of lint with which you have manipulated it. If we simply push the prolapse up and take our finger away, it comes down directly; but if we take a strip of lint and then squeeze the blood out of the bowel, we can push the lint and bowel back together, and the lint remaining in the lumen of the bowel keeps it in its place. After some hours the lint will come away spontaneously, or with the next evacuation, and then the case is relieved. In order to keep up the bowel in an obstinate case, it is not a bad plan to put a strip of plaster across to hold the two buttocks together, so as to prevent the bowel coming down again.

These cases of simple prolapse are readily enough treated, even in the adult; but we occasionally get cases of procidentia, where the whole bowel comes out, and they are exceedingly difficult to cure. Within the last few years I have been very successful in curing some of these cases in the hospital with the actual cautery. If we have a great prolapsed bowel, of course it will never do to cut it off. If we did that, we would probably find that, just as with a prolapsed uterus, we would cut off a piece of the peritoneum. But when we have a prolapse forming a large sausage-like

projection from the rectum, we can apply nitric acid, which some recommend, but which I do not think quite sufficient for the purpose. I prefer to use PAQUELIN'S cautery. The method is to draw a series of vertical lines upon the prolapse, and then, under chloroform, to put the part thoroughly back, and with the cautery to cut two or three deep grooves in the anus itself, because in these cases it is enormously dilated, and, unless we thoroughly contract the anus, no power will keep the bowel within. Then, of course, we lock up the bowels with opium, and keep the patient carefully in bed. As far as I have seen, we generally get a cure in such cases, though sometimes the cautery has to be applied more than once.

—A patient comes to us, saying that he is very uncomfortable because he has a little swelling which is very painful. We find a little bluish mass by the side of the anus, and, as far as I have seen, it is more common in men than in women. It is nothing more nor less than a thrombus in one of the inferior hemorrhoidal veins. We find, perhaps, that the patient has been dining out once or twice of late, and his bowels have become a little constipated and the liver overloaded, and the venous circulation obstructed. Every now and then patients will go on suffering this inconvenience for a few days without taking advice, and the thing gets well; that is, it gets well by absorption of the blood clot, and by leaving a loose fold of skin at the edge of the anus. That is how those loose external piles which we see so commonly are formed. But if we get the case in an early stage, by far the best thing to do is to make a little nick with a bistoury into the swelling, and to turn the clot out. It turns out very readily; we get rid of the thrombus, and we see the lining wall of the vein left behind; we put a little iodoform to it, and the thing heals up in a day or two, so that the patient has no further trouble.

One word with regard to ischio-rectal abscesses. The patient may have an abscess in the ischio-rectal fossa from various causes. It may be from internal causes—such as ulcera-

tion, which is often tuberculous—or a fish-bone or a pin may have passed through the bowel and then become entangled in the sphincter, producing perforation; or it may arise from external causes, such as sitting on damp grass, on the wet seat of an omnibus, or things of that kind which have a tendency to produce local irritation and inflammation about the buttocks. From whatever cause it may happen, the symptoms are much the same. The patient has a phlegmonous swelling, which is hot and tender, between the ischium and the anus, and the ischio-rectal fossa is filled up with inflammatory deposit, which rapidly become purulent. In a case of that kind, the sooner we make an opening and let the matter out, the better: for if it is allowed to remain, it will burrow up into the rectum. The best way is to put the patient on his hands and knees, then to pass the finger into the rectum, left or right, according to circumstances; we then introduce a bistoury by the side of the rectum and cut outwards. We have the patient completely under our control by the finger in the rectum, so that we can hold him firmly, and can put the knife down by the side of the rectum, and just cut sufficiently to let the matter out freely. Then arise the questions, Shall we do more? Shall we lay the abscess open into the rectum? That will depend upon how thin the rectum is. If the abscess has already encroached upon the rectum so that it is thin, it is better to lay it open at once into the rectum, because if we leave it, it will degenerate into a fistula; and we will be doing one operation instead of two.

We will know at once by the smell whether or not the abscess communicates with the rectum. Nothing is more offensive than the smell of pus in an ischio-rectal abscess which communicates with the rectum. In these cases there is no doubt about laying the bowel open; but in other cases, where it is a superficial abscess due to external causes, there will probably be no smell, and then I advise not to lay the rectum open unless we have reason to think that it has been encroached-upon.

Lastly, one word about hemorrhage from the bowel. A patient comes to us and says: "I lose a little blood from the bowel, but I do not think it does any harm." That is perfectly true; an occasional slight discharge from the bowel is in many cases a salutary thing. We remember how the rectum is supplied with blood from the inferior mesenteric as well as from the iliac and pudic arteries, and that all the arteries inosculate, while the veins communicate with the vena portæ as well as the pudic veins, so that a slight hemorrhage may in that way relieve a congested liver. But it is different if the patient loses considerable quantities of blood from the rectum; and we should always be on our guard to inquire whether the blood is simply mixed with the motion, or whether it is spurted out over the pan of the closet; because in the latter case, it is obvious that it must be arterial blood or venous blood in considerable quantities, shot out by the muscular effort of the rectum. In either case the patient may lose more blood than is good for him. It may depend upon internal piles,

and in the majority of cases it is so; but of the treatment of these I am not going to speak.

There is one thing which causes hemorrhage, and that is a vascular patch of mucous membrane in the rectum. When we expose it with the speculum, we see blood pouring out from it. Those cases can be treated very readily by the application of caustic. They are the only cases of piles or rectal disease which really do well with caustic. To apply nitric acid to great masses of internal piles is really to play with them, and not to cure them. But if on passing the speculum we can distinctly see a vascular surface which bleeds very readily, I advise to touch it freely with a piece of stick dipped in the strongest fuming nitric acid, or, as I prefer, the acid nitrate of mercury, the effect of which will be that you will arrest the hemorrhage immediately. We should then lock up the bowels with a little opium for a day or two to give rest, and the next time the patient has an evacuation there will be no bleeding, or, at least, much less; possibly another application may be required.

NEW REMEDIES,

AND NEW LIGHT ON OLD ONES.

BISMUTH SUB-GALLATE AS A SICCATIVE ANTISEPTIC IN INFANT PRACTICE.

Dr. EUGENE DOERNBERGER, of Graz, reports (*Therap. Monatsh.*) his experience with BISMUTH SUB-GALLATE—previously described in this journal—at the pædriatic clinic of the UNIVERSITY OF GRAZ. It was employed in 43 cases,—to wit: 15 cases of eczema, 2 of cutaneous abscesses, 2 of glandular abscesses, 2 of injuries, 1 of cellulitis, 3 of burns, 3 of small ulcerations, 7 of otorrhœa, and 4 of phlyctenular conjunctivitis. It was employed pure, in the form of a 10-per-cent ointment with vaselin spread on lint, or as 10% gauze; sometimes in two of these forms combined.

As regards the 15 cases of "weeping" and impetiginous eczemas treated with the 10-per-cent ointment, in almost all of them the parts were strikingly dry on the following, or, at the

latest, on the second-following day. Such of the scabs as still remained undetached could be removed with ease. Not only were circumscribed eczemas—such, for instance, as occur so frequently on children's ears and noses—promptly cured by the BISMUTH-SUB-GALLATE application, but also extensive ones of this category, of long as well as of short standing. However, no influence was exerted on the development and spread of papulous eczema.

In pemphigus and herpes zoster, in abscesses (both cutaneous and glandular), and in traumatic wounds, prompt results were obtained from BISMUTH SUB-GALLATE. In burns of the second degree, this antiseptic, in ointment-form, thickly spread on lint, proved specially serviceable: the customary annoying serous secretion was very scanty, and integumentation progressed exceedingly fast. Fi-

nally, the drug in pure form proved useful in otorrhœa (by insufflation), and in conjunctivitis.

From his experience in these 43 cases, Dr. DOERNBERGER concludes that BISMUTH SUBGALLATE is a valuable desiccant in "weeping" and impetiginous eczemas; and that as a traumatic granulator, it has the advantage over iodoform of being odorless, non-toxic, and non-irritant.

CARBOLIC-ACID SPRAY IN BLENNORRHAGIC ORCHITIS.

According to Drs. PAUL THIERY and HENRY FOSSE, of Paris, the carbolic-acid spray is indicated (*Gaz. Méd. de Paris*):

1.—In the treatment of anthrax and furunculosis: applied at once in the beginning, it exerts an abortive action.

2.—In various superficial phlegmonous inflammations of the trunk or of the extremities, and in the suppurative stage of adenitis.

3.—In the treatment of ichorous or ununited wounds, where it constitutes an important part of the open antiseptic treatment.

4.—In the treatment of erysipelas.

5.—In the treatment of impacted prolapsed hemorrhoids, where it very soon produces a diminution in the size of the nodes, reposition of the same, and detachment of the mortified tissue.

6.—In the treatment of lymphangitis.

7.—For disinfection before an operation.

It is claimed that the carbolic-acid spray serves as a permanent antiseptic bath, that it works against the exciters of sepsis through the agency of the carbolic acid, and that it relieves pain and swelling by its warmth and moisture. These three properties it was which induced the authors to use the carbolic spray in the treatment of gonorrheal orchitis, which they did in twenty-five cases at the HÔPITAL DU MIDI, Paris. The pains in many instances greatly diminished or entirely disappeared within twenty-four hours,—that is, after two or three applications of the spray; sometimes even after the very first application. On the average, however, the pains disappeared in all

the patients after the sixth application of the spray. In the most obstinate cases, this obtained only after 10–13 applications, in one case not before 28 had been made. The inflammatory symptoms disappeared as a rule after a few days, so that often a cure was effected within four, five, or six days; the average duration of the treatment, however, was 8–9 days,—which is at all events much shorter than that of the treatment heretofore in vogue. After the lapse of this time, it is claimed the patients can attend to their usual occupation undisturbed.

Dr. VERNEUIL, the introducer of the carbolic spray into therapy, observes the following method of making the applications in orchitis: A large steam-atomizer with a strong stream is employed. The patient is placed on the edge of the bed,—in the position necessary for examination with the speculum,—his feet resting on two chairs. The abdomen and thigh are covered with some water-proof material, so that the stream strikes only the scrotum, which is covered with a simple layer of gauze. In those cases where funiculitis co-exists, the groin is left uncovered. The spray-apparatus is placed at a distance of 25–30 centimetres [10–12 inches] from the scrotum, so that the vaporized fluid reaches the part quite warm. The temperature of the stream as it thus strikes the affected part is scarcely 30° C [86 F]. The procedure, which is always well borne by the patient, lasts 20–30 minutes, and is repeated twice—in severe cases three times—daily, until the pains have entirely disappeared. In the intervals between the applications the patient remains in bed, with his scrotum well raised. After a few days the patient may get up.

In not a single case were there any accessory symptoms whatever noticed. In spite of the very frequently observed black coloration of the urine, general symptoms of carbolic acid poisoning never supervened.

For the carbolic acid spray, a two-per-cent solution is generally used; but in very young individuals, the concentration should be weaker

CORROSIVE SUBLIMATE IN CYSTITIS.

According to Dr. GUYON (*Arm. des Mal. des Org. Génito-ur.*) CORROSIVE SUBLIMATE is an excellent remedy for severe cystitis. In his hands it has proved specially serviceable in vesical tuberculosis, superseding in efficacy all other remedies. Of 10 cases of tuberculous cystitis treated with CORROSIVE SUBLIMATE, 5 were materially improved, 2 of these so much that they might have been regarded almost as cured.

This treatment proved extraordinarily efficacious also in other forms of cystitis, even in cases of many years' standing.

As regards the method of application, the medicament may be used either in the form of irrigations, or as instillations. Dr. G.'s experience leads him to prefer the instillations. The concentration of the SUBLIMATE solution fluctuates between 1:5000 and 1:1000. At the outset only 20 or 30 drops are instilled, by means of a small syringe, into the pars posterior urethræ,—for in every case of cystitis there is present—the author holds—a posterior urethritis; gradually the dose is increased to 4 grammes [1 fl. dr.]. The greater the pain, the smaller must be the quantity of fluid instilled. Of course, the bladder should be emptied before each instillation.

EXALGIN IN CHOREA.

DUJARDIN-BEAUMETZ'S observation that EXALGIN (*Methylated Antifebrin*)—previously described in this journal—does not act simply as an anodyne but that its action extends also to the cerebro-spinal nervous system, favorably influencing spasmodic conditions, has induced Dr. HUGO LÖWENTHAL (*Berl. Klin. Wochenschr.*) to employ this medicament in chorea, which he did at the third medical clinic and polyclinic of the UNIVERSITY OF BERLIN, in 35 patients 3 to 18 years of age. The dose was 0.2 gramme [3 grains], usually three times daily, in a few cases five times daily; never did the daily dose exceed 1 gramme [15 grains], or fall below 0.6 gramme [9 grains], save in the case of a 3-year-old boy who received

only 0.1 gramme [$1\frac{1}{2}$ grains] three times a day. It was administered dissolved in sweetened water.

In some of the cases the chorea was mild in form, while in others it was severe,—the remedy acting accordingly. As a rule, the effects were satisfactory—mild cases being cured quickly, severe ones requiring more time.

The duration of the treatment varied from eight days to four months. A large number of the patients came under treatment shortly after the outbreak of the disease,—on the second or third day. In these cases the EXALGIN often acted so well that—as, for instance, in two boys—cure was effected in eight days. Other patients came under treatment first after the disease had existed for a week or a fortnight. In these the average duration of the treatment was 5–6 weeks. A few children were brought to the clinic after they had had the disease for months.

In several patients improvement appeared even as early as after the 12th powder,—that is, after 2.4 grammes [36 grains] of EXALGIN had been taken; in the majority, however, only after the 25th–30th powder,—that is, after 5–6 grammes [75–90 grains] of the drug had been ingested.

The EXALGIN exerted a very good influence on the psychical excitations: fear, violent weeping, and peculiar conduct of the children disappeared very quickly,—already during the first week; difficulty of speech improved promptly,—in one instance as early as after the 6th powder; sialorrhœa, present in two cases, ceased during the first week; weakness of memory was favorably influenced; formication in the fingers and arms vanished in one case after 12 powders; and pains in the joints, present in one patient ceased, after 24 powders.

However, besides the beneficial influence of EXALGIN, untoward accessory effects were observed—nausea, vomiting, lassitude, headache, vertigo, and icterus.

ASPIDOSPERMINE has been found of value—it is claimed—in *uræmic asthma*.

ICHTHYOL IN CRACKED NIPPLES.

Dr A. OEHREN, of Wendau (near Dorpat), most warmly recommends ICHTHYOL for fissured nipples in nursing women. His favorite formula is (*Therap. Monatsh.*):

Ichthyol.....	4 parts.	
Lanolin	} of each.....	5 “
Glycerin		
Olive (or Sweet-almond) Oil.....	1 part.	

Ointment!

The advantages claimed for this ointment are:

- 1.—The unbearable pains on applying the child diminish after the very first application, and disappear completely in a short time.
- 2.—The fissures heal rapidly, without it becoming necessary to refrain from nursing the child or to use nipple-shields.
- 3.—The ointment is of such consistency that it can be washed-off completely without difficulty.
- 4.—The ointment contains nothing which might injure the child should the washing-off, before applying the babe, be done carelessly or even forgotten.

LACTIC ACID AS A GOUT PROPHYLACTIC.

Dr. BÉRENGER FÉRAUD (*Bull. de Therap.*) recommends LACTIC ACID as a prophylactic against attacks of gout. Under its influence he has observed the attacks to diminish both in frequency and in intensity. A case is cited in which 4 grammes [1 fl. dr.] of LACTIC ACID were administered immediately upon the appearance of a paroxysm; as a result, that attack was less intense and of shorter duration. A second attack, treated the same way, was also favorably influenced, and there was no fresh attack for nine months.

As for the author's mode of employment, it is very simple: the patient provides himself with 40 grammes [1¼ fl. oz.] of LACTIC ACID, and dilutes it with an equal quantity of water. Every morning a teaspoonful (representing 2 grammes [½ fl. dr.] of LACTIC ACID) of this solution is drank with as much as two, three, or four glassfuls of water, according to the patient's palate. The medicine may be sweetened, if

necessary. At the end of twenty days, by which time the patient's supply will have been exhausted, the medication is suspended for 10 or 11 days, after which it is resumed. In this manner the treatment is continued, with the stated interruptions, for several years.

Dr. FÉRAUD considers LACTIC ACID a quite inoffensive medicament, and asserts that its prolonged use does not seem to be injurious to nutrition, nor to disturb the digestive or any other functions.

MORPHINE AS AN ANTIDOTE TO COCAINE.

Dr. CHOUPE, of Paris, directs attention (*Bull. Méd.*) to the antagonism existing between MORPHINE and cocaine, and which is so great as to render possible an employment of the former in acute poisoning by the latter. As is known, it has frequently been observed that morphinists can bear relatively enormous doses of MORPHINE after receiving an injection of cocaine. It appears, therefore, as if chronic morphinism could lend to the cerebral cells an increased power of resistance toward cocaine. But, according to the author, this resistance has a limit, so that morphiomaniacs often present formidable symptoms after taking an excessive dose of cocaine. In such a case it has been found that the toxic phenomena disappear rapidly after the injection of even a small dose of MORPHINE.

This clinically established fact has been strongly supported by animal experiments. Dr. LABORDE is reported to have observed that in dogs a dose of cocaine, which would surely kill under ordinary circumstances, does not bring on a fatal termination if, at the moment the symptoms of poisoning make their appearance, an injection of MORPHINE be given. Dr. CHOUPE has noticed the same antagonism in hedge-hogs and frogs.

To utilize this antagonistic action in man, it is recommended, therefore, to administer a large dose—0.03–0.04 gramme [½–⅔ grain]—of MORPHINE as soon as cocaine poisoning manifests itself.

PETROLEUM AGAINST INTESTINAL WORMS.

Dr. PERRIN recommends (*La Méd. Mod.*) PETROLEUM to combat oxyuris vermicularis and tænia. In several cases of the former he gave clysters of PETROLEUM emulsionized with 125 grammes [$4\frac{1}{8}$ fl. oz.] of water, or simply mixed and agitated with an equal quantity of olive oil, after having previously emptied the intestines by means of an ordinary enema. With this treatment, repeated for several days, and combined, when necessary, with the ingestion of one or two purgative doses of castor oil, the author has succeeded in absolutely mastering even cases of thread-worm of long standing and which had resisted all other medication.

This success induced Dr. P. to try the PETROLEUM *internally* against ascarides and tænia, which he did with equally beneficial results. It was administered in capsules each containing 30 centigrammes [5 minims] of the drug—10–12 daily, 3 or 4 at a time. Never was the slightest disturbance produced—it is claimed.

TETANUS ANTITOXIN.

DRS. G. TIZZONI and G. CATTANI have succeeded in producing immunity against tetanus, even in animals, susceptible in a high degree; and have shown that blood-serum exerts an antitoxic action, and is capable of producing immunity against and cure of the disease. They succeeded in obtaining this ANTITOXIN in a dry state by the addition of alcohol to the serum and drying the precipitate in vacuo. Rubbed up with a little sterilized water, it forms a turbid emulsion (complete solution is not effected), which, when injected subcutaneously, causes a burning pain at the point of puncture.

Clinical observation having demonstrated that tetanus is of longer duration and less certainly fatal in man than in many animals, there seemed to be good reason to hope that the TETANUS ANTITOXIN might be of great value therapeutically. This hope has been realized.

The first case on record treated by means of injections of the ANTITOXIN of TIZZONI and

CATTANI was observed by Dr. GAGLIARDI, of Molinella. One gramme [15 grains] of the dry substance was employed. As a result, all the symptoms of tetanus disappeared, and complete recovery ensued.

A second case of tetanus cured by ANTI-TOXIN injections was reported by Dr. RUDOLPH SCHWARZ (*Centralbl. f. Bakt.*), assistant in Prof. ALESSIO's surgical clinic, Padua. A peasant boy of 15 accidentally cut his finger on August 20, 1891. Symptoms of tetanus set in September 4, and were at first treated with chloral hydrate, warm baths, and injections of carbolic acid, but in vain—the patient even growing worse after some days. Sept. 16, all treatment was discontinued. Sept. 18, at 3 P.M., 15 centigrammes [$2\frac{1}{4}$ grains] of ANTI-TOXIN dissolved in water were injected subcutaneously. At 7:30 no distinct diminution of the symptoms was noticeable though the patient claimed to feel better. His mind seemed clearer, he commenced to breathe more easily, and the joints of the left arm seemed to be freer. From 7 to 10 P.M., he perspired abundantly. Pulse and respiration were not altered; but the temperature fell after four hours from 37.7 to 37° C [99.9–98.6 F], and then rose again to 37.3° C [99.2 F]. During the night the patient had two short spasmodic attacks occasioned by noises in the room. Sept. 19, 8 P.M., 15 centigrammes of ANTITOXIN were again injected, without effecting any obvious change in pulse, temperature, or general condition. At 3 P.M., the scar was divided under chloroform, and 20 centigrammes [3 grains] of ANTITOXIN injected. As a result, the patient perspired freely, and the temperature gradually fell from 38.1 to 36.3° C [100.6 to 96.08 F], and then rose again to 38.7° C [101.7 F]. During the night the patient slept calmly and had no spasms. The following day the pupils were less dilated, the mouth could be opened to some extent, the movement of the arms were freer, and other muscles also felt less tense than on the previous day; the patient could walk without staggering or needing support, he felt better, and his speech

was more fluent. At 3:30 P. M., 25 centigrammes [$3\frac{3}{4}$ grains] of the ANTITOXIN were injected, and produced the usual fall in temperature and slight perspiration. The patient slept through the entire night without interruption. Sept. 21, the tenseness of all the muscles was considerably diminished; the limbs could be flexed with ease, and the gait was normal. At 5 P. M., another and last injection of ANTITOXIN [25 centigrammes] was made. Sept. 22, the improvement in all the symptoms was striking; Sept. 23, the patient appeared to be well;—all the symptoms of tetanus had disappeared, and there only remained a certain feeling of weakness—particularly in the legs.

The third case on record of traumatic tetanus cured by the ANTITOXIN of TIZZONI AND CATTANI was observed by Dr. E. PACINI, (*La Ref. Med.*), at the HOSPITAL OF THE COLLE DI VAL D'ELSA, Tuscany. Injections of 25 centigrammes [$3\frac{3}{4}$ grains] were made twice daily for four days, after which no medication was administered save a draught containing 2 grammes [30 grains] of chloral hydrate every night. As already mentioned, the case ended in recovery.

A fourth case cured by the ANTITOXIN occurred in the service of Dr. FINOTTI (*Wien. Klin. Wochenschr.*), assistant to Prof. NICOLA DONI in the Surgical Clinic at Innsbruck. A boy of 11 who had undergone amputation of the right forearm presented symptoms of tetanus ten days after the operation. At first 15 centigrammes [$2\frac{1}{4}$ grains] of the ANTITOXIN were injected, afterwards 20 centigrammes [3 grains], dissolved in 3 cubic centimetres [48 minims] of sterilized water.

GREEN SOAP AND SAND are strongly recommended by Prof. PARVIN for washing the hands previous to making vaginal examinations,—the soap giving a good lather, and the sand, by mechanical action, leaving the skin of the hands in excellent condition for making the examination.

THIOPHENE AND ITS COMPOUNDS.

THIOPHENE— C_4H_4S —was recognized by V. MEYER as being an invariable accompaniment of benzene as produced from coal-tar. It can be separated by shaking the benzene with one-tenth its bulk of concentrated sulphuric acid, until the addition of a little isatine no longer produces a blue color (iodo-phenin reaction). THIOPHENE is a colorless, mobile oil of a faint odor; non-miscible with water, and boiling at $84^\circ C$ [$183.2 F$]. It does not appear to have been employed therapeutically, thus far. However, several of its compounds—sodium thiophene-sulphonate, lead thiophene-sulphonate, and thiophene di-iodide—have recently been used by Dr. EDWARD SPIEGLER (*Ther. Monatsch.*), in PROF. KAPOSI'S dermatological clinic at Vienna.

SODIUM THIOPHENE-SULPHONATE— $C_4H_3S.Na SO_3$ —is described as a white, scaly powder of a faint, disagreeable odor, not perceptible, however, in 5–10% ointments; it contains 33% of sulphur, half of it combined with carbon.

SODIUM THIOPHENE-SULPHONATE was employed in 5–10% ointments (with equal parts of lanolin and vaselin) in 30 cases of prurigo, both mild and severe in form, with the result that in a short time—usually after the lapse of a week—the skin became smooth, the thickening receded, and the itching disappeared. With the 10% ointment the favorable results were obtained somewhat more rapidly than with the 5% ointment; according to Dr. SPIEGLER, the former may be used with impunity, as the SODIUM THIOPHENE-SULPHONATE is perfectly non-poisonous, and in no manner irritating to the skin.

LEAD THIOPHENE-SULPHONATE is reported to be similar in action to the sodium combination but somewhat slower, and to produce in some individuals a slight burning sensation lasting a few minutes.

THIOPHENE DI-IODIDE— $C_4H_2SI_2$ —is described as crystallizing in beautiful plates which volatilize in the air and melt at $40.5^\circ C$ [$104.9 F$]; very easily soluble in ether, in chloroform, and in hot alcohol, less freely in cold alcohol;

insoluble in water. It contains 75.5 per cent of iodine, and 9.5 per cent of sulphur—both in direct combination with carbon.

THIOPHENE DI-IODIDE proved quite satisfactory as a succedaneum for iodoform in *wound-treatment*. In several cases of burns of the third degree, Dr. S. observed a prompt deodorizing and astringent action to manifest itself on the part of the medicament, which was employed in 10% gauze. No unpleasant accessory effects—such as eczema, for instance—were noticed; but the granulations were small, vivid red, and not so exuberant as with iodoform.

—Dr. AUGUST HOCK (*ibid.*), assistant in Prof. VON DITTEL'S surgical clinic at VIENNA, has employed THIOPHENE DI-IODIDE with alleged good results in purulent wounds (phlegmons, contused wounds, complicated fracture, carcinoma, mastitis, etc.). The pure powder was freely dusted into the wounds, and the latter covered with ordinary white gauze or with 10% THIOPHENE DI-IODIDE gauze prepared with the following solution:

Thiophene di-Iodide.....	50 parts.
Alcohol }	.....of each, 500 “
Ether.. }	
Glycerin.....	10 “

To this solution were added 2 or 3 parts of a saturated alcoholic solution of safranine, to serve as an index of the uniform distribution of the medicament in the gauze, and as a means of differentiating the thiophene gauze from other dressing material. This gauze is claimed to have an agreeable, slightly aromatic odor, less intense and tenacious than that of iodoform.

According to Dr. HOCK, THIOPHENE DI-IODIDE effects complete deodorization of fetid wounds,—far exceeding iodoform in this respect; but the formation of granulations progresses more slowly than under iodoform, while the granulations themselves are firmer, smaller, and show less tendency to proliferation. Symptoms of intoxication were never observed.

THYMOL IN PULMONARY GANGRENE.

Dr. O. HEWDKE, of Warsaw, reports (*Deut. Med. Wochenschr.*) on four cases of pulmonary gangrene treated with parenchymatous injections of THYMOL. The usual remedies—turpentine, creasote, inhalations of carbolic acid, etc.—had been tried without any beneficial effect. THYMOL in $\frac{1}{3}$ – $\frac{1}{2}$ % alcoholic solution was then injected by means of a syringe of a capacity of $2\frac{1}{2}$ cubic centimetres [40 minims], and provided with a needle 5–7 centimetres [2 – $2\frac{1}{2}$ inches] long. As a result of this treatment considerable improvement was observed, amounting in one of the cases to almost complete cure. Local irritation of the skin or subcutaneous tissue was not noticed, except where the injections had been frequently repeated. The THYMOL solution was well borne to the extent of 2 – $2\frac{1}{2}$ cubic centimetres [32–40 minims].

The mechanical part of the treatment presented no difficulties. As soon as the needle reached the gangrenous cavity, a paroxysm of cough occurred, followed by free expectoration,—the patient both tasting and smelling the injected fluid. The author recommends the selection of recent cases and those presenting superficial and non-tuberculous cavities for this method of treatment.

NITRO-GLYCERIN, 1 drop of a 1% solution 3 times a day, is sometimes prescribed by Prof. DA COSTA in *epilepsy* when the bromides fail.

SODIUM SALICYLATE is regarded by Dr. H. N. JOYNT as a specific for *scarlatinal rheumatism*. It is advised to give it in moderate doses every hour or two till effective, then in smaller doses at longer intervals for some days.

BORIC ACID dissolved in glycerin is recommended by Dr. H. N. JOYNT as a reliable means of disinfecting the throat in *scarlatina*. The throat and nares are thoroughly syringed-out every three or four hours, or oftener, with this solution.

PRACTICAL HINTS

ON METHODS IN THERAPY, PHARMACY, ETC.

COMPOUND ANTISEPTICS.

In a paper read before the BIOLOGICAL SOCIETY, Paris, Drs. DE CHRISTMAS and RESPAUT emphasize (as reported by *Médecine Moderne*) the fact, previously observed by many authors, that, when a number of antiseptics are associated in one and the same solution, the microbicide power of the latter is *greater than the sum* of the antisepticity of the solutions of each of the antiseptics separately.

LAPLACE had proposed the use of a solution of equal parts of carbolic and sulphuric acids; HAMMER had recommended a mixture of ortho- and meta-cresol; etc.

The two first-named authors have studied various combinations of antiseptics: the following are some of their formulas :

Benzoic Acid.....1 part.
Carbolic Acid.....8 parts.
Zinc Chloride.....1 part.

A 1:100 aqueous solution of this mixture kills—it is claimed—the staphylococcus aureus in 30 seconds, the bacillus anthracis, bacillus pyocyaneus, and the bacillus of EBERTH, in one minute.

The following mixtures had the same microbicide action on the same bacilli as the above:

Carbolic Acid.....8 parts.
Benzoic Acid..... } of each, 1 part.
Oxalic Acid..... }

or :

Carbolic Acid.....9 parts.
Salicylic Acid.....1 part.

Finally, the following mixture was found to be twice as active as the above:

Carbolic Acid.....12 parts.
Salicylic Acid.....1½ parts.
Peppermint Oil.1 part.

Tuberculous sputa were sterilized in 10–15 minutes by a 1% solution of this mixture; saliva containing 425 colonies of germs in each drop, contained only 30, five minutes after rinsing the mouth with a ½ % solution, while

several successive rinsings reduced the number to 0; for one hour after a single wash, the saliva no longer contained any microbic colonies.

COCAINE—NEW METHOD OF EMPLOYMENT IN SURGERY.

Dr. COURTIN, of Bordeaux, recommends a new mode of employing COCAINE in surgery consisting in impregnating the bleeding tissues with the COCAINE solution. He proceeds as follows: In the case of a tumor situated beneath the skin, the part is first sprayed with sulphuric ether up to the point of freezing the tissues; this done, the skin is cut with a bistoury, and the bleeding parts are bathed, by means of small sterilized sponges, with a 1:30 solution of COCAINE in distilled water,—this bathing being repeated a certain number of times during the operation.

Under the influence of these baths, Dr. COURTIN has noticed a vermilion coloration of the bloody effusion, and slightly increased bleeding.

Before applying the sutures the bleeding surfaces of the skin receive a final bath of COCAINE solution, in order to avoid pain at the points of suture.

If the case to be operated upon be one of tumor situated beneath a mucous membrane, the spraying with ether is replaced by bathing the mucous surface with the same COCAINE solution for about five minutes, after which the enucleation of the tumor is proceeded-with as in the first case.

The absorption of the medicament should be prevented as much as possible; it is impaired to a great extent by the bleeding.

In the above manner Dr. COURTIN claims to have removed without pain a lipoma of the nape of the neck as large as a hen's egg, a wen of the scalp, another lipoma of the abdominal parietes, and a dermoid cyst of the size of an

orange, occupying the floor of the mouth. Accidents were never observed, and primary union of the wounds in the skin was always obtained.

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VAGINAL HYSTERECTOMY IN PELVIC SUPPURATION.

At a recent meeting of the PARIS SURGICAL SOCIETY, Dr. TERRILLON spoke favorably of this extreme measure. He has operated on four cases of old-standing pelvic suppuration with hectic exacerbations and rectal and vaginal fistulæ. The first patient had been ailing for two years subsequent to a miscarriage; parametric infiltration extended as high as the navel, and the uterus was firmly fixed in the inflammatory deposit. Abdominal section proved useless: the omentum could not be detached, and the intestines were so firmly adherent that no attempt was made to liberate them. The uterus was at once extirpated from the vaginal side. On the twenty-eighth day serious symptoms developed,—owing to retention of pus behind the vaginal cicatrix. The fever ceased as soon as an exit was made for the pus; but a vaginal fistula remained.

In the second case—similar to the first—abdominal section was found impracticable, and vaginal hysterectomy was performed eight days later, with the result of effecting a complete cure.

In the third case the patient had been ill for nine years, and was suffering from a lichenous eruption which had been attributed to septicemia; albuminuria, vomiting, and fever were present. Vaginal hysterectomy proved very troublesome, and considerable shock followed. Nevertheless, the patient recovered, and the annoying eruption disappeared.

The fourth patient had been ill for twelve years, and had suffered from severe continuous pain and fever since two months. Vaginal hysterectomy was performed on the left side; the vagina cicatrized nicely, but a rectal fistula remained.

—The last-mentioned case is sufficient to show—according to the author—that the

operation does not always bring about a radical cure; the first two cases, on the other hand, demonstrated that vaginal hysterectomy may succeed after abdominal section has proved of no avail. Although the operation appears especially advisable in cases where there is a well-incysted abscess, Dr. TERRILLON considers it required in cases of old extensive and ill-defined suppurative processes with fistula, adhesions, and parametric infiltration of the parietes.

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SURGICAL FILIARIOSIS.

Dr. MOTY reports (as stated in *The Brit. Med. Journ.*) 6 cases of lymphatic varix in the groin and scrotum, due to the presence of filariæ in the blood and lymph. The patients, all of whom had resided in French colonies, came under observation at the VAL-DE-GRÂCE. This inguino-scrotal swelling—it is thought—may frequently occur amongst those who have returned to Europe after a sojourn in any of the districts infected by the parasite,—the nature and origin of the affection being probably often over-looked. The author discusses at length the serious questions relating to filiarioris, and draws the following conclusions:

- 1.—Filiarioris is an aseptic parasitic affection.
- 2.—It is due to the presence in the body of the *filaria sanguinis hominis*.
- 3.—It is of frequent occurrence in most of the French colonies, including New Caledonia.
- 4.—It is most frequently manifested by dilatation of the glands and lymphatic vessels of the groin and the spermatic cord.
- 5.—The pathology of the filiarial phenomena seems to consist in the irritative action of the filariæ and their embryos, both being nomadic, on the cellulo-lymphatic system.
- 6.—It is possible to base the diagnosis of filiarial lesions on clinical data, but it ought to be confirmed by examination of the blood.
- 7.—No results have as yet been obtained from internal remedies in the treatment of filiarioris.
- 8.—Attempts at external palliative treat-

ment cannot be strongly recommended; excision of the hypertrophied structures is indicated when their size causes much inconvenience.

9.—In the course of such surgical interventions; living or dead adult *filiariæ* may be removed with the diseased tissues.

IODIDES,—THEIR DECOMPOSITION IN THE ORGANISM.

At a recent meeting of the SOCIÉTÉ DE BIOLOGIE at Paris, Dr. LAPICQUE communicated (*La Sem. Méd.*) the result of his researches on the decomposition of the iodides in the organism. As it is held that free iodine can never be found in the blood on account of the alkalinity of the latter medium, the author believed the question could be studied only indirectly,—by comparing with one another the toxic actions of the various iodine-compounds, and determining whether these actions are similar, and whether they are more energetic the more easily the combination is decomposed in the body.

Iodine itself is poorly adapted to this research; furthermore when brought into contact with the blood, it combines with the bases of the carbonates. It is known that iodate of sodium or of potassium is reduced by the blood to iodide. Dr. L. has discovered, by experiments on the living animal, that this reduction commences almost instantly and continues for a long time. Thus, the transformation of iodate into iodide supposes a stage where iodine is set free. The iodate therefore constitutes a source of nascent iodine, owing to its being reduced; it ought to be much more toxic than the iodide, and more toxic than iodine injected in the form of an iodiodized solution.

In effect, on comparing his own experiences as well as those of others, Dr. L. observed that the intoxication by large doses of iodide and that produced by small doses of iodate are about the same, but that the toxic phenomena appear much more quickly with the

iodate. Iodine itself is the mean between the iodide and the iodate.

As for the action on the circulation, it was found that 10 centigrammes ($1\frac{1}{2}$ grains) of sodium iodate lower the blood-pressure in 5 minutes as much as 30 centigrammes ($4\frac{1}{2}$ grains) of sodium iodide do in 1 hour.

STRYCHNINE—ACTION ON THE STOMACH.

Dr. GAMPER (*Kirurg. Vestnik*) has made a series of experiments with STRYCHNINE, with a view to determining its action on the stomach. Observations were made on seven individuals, five of whom were in good health, one suffered from gastralgia with excessive secretion of gastric juice, and the seventh—the author himself—was affected with gastric catarrh. The observations extended over a period of 20–30 days; during the first and the last week, no STRYCHNINE was administered. EWALD'S test breakfast was given, and the volume of the gastric juice, the percentage of total acidity, the amount of hydrochloric acid by weight, the digestive power of the juice, the result of fermentation, and the absorbent power of the stomach were determined, and the gastric movements studied.

The drug was employed in the form of its nitrate, which was administered at breakfast, in doses of 0.002–0.005 gramme [$\frac{1}{30}$ – $\frac{1}{12}$ grain], sometimes increased to 0.015 gramme [$\frac{1}{4}$ grain]. As a result, the activity of the stomach was increased in every respect with the exception of that due to the ferment and the lactic acid. The author attributes the usefulness of STRYCHNINE to the increased excitability of the medulla which it causes.

SALICYLIC ACID in 1–5-grain doses is reported by Dr. G. DE ROSA to be an efficacious *prophylactic* against scarlatina.

HYOSCYAMINE is reported by Dr. VERNEUIL to have cured a case of *neuralgia* after resection of the nerves and even amputation had failed.

INFLUENZA BACILLUS—CHARACTERISTICS.

At a recent meeting of the *ACADÉMIE DE MÉDECINE* at Paris, Drs. CORNIL and CHANTEMESSE read a paper on the microbe of influenza, —first briefly alluding to the researches made by other authors, and then giving an account of their own experiments pertaining to this subject. Here follows a short extract of their discourse.

In 1890 Dr. V. BABES, of Bucharest, discovered in grippe a small bacillus of the form of a diplococcus, 0.2–0.3 micromillimetres [$\frac{2-3}{25,000,000}$ inch] in diameter, and forming transparent cultures on gelatin.

A short time afterward Dr. KOVALSKY made researches on the same subject and arrived at nearly analogous results. Lastly Dr. RICHARD PFEIFFER, of Berlin, made investigations synchronously with, but independently of Dr. CANON, and arrived at the same conclusions as the latter. According to both PFEIFFER and CANON, the blood of subjects affected with influenza contains the special bacteria which these authors consider the pathogenic agent of this disease.

Drs. CORNIL and CHANTEMESSE took a drop of blood from a child with influenza, and inoculated it into a superficial vein of a rabbit's ear. The next day the blood of this rabbit contained microbes corresponding to the descriptions given by BABES and PFEIFFER,—very small, more difficult to see than those of rabbit septicemia (because they were shorter), and stainable with methylene blue and fuchsin in ZIEHL'S solution. Their length was about $\frac{1}{20}$ of the diameter of a red blood-corpuscle.

The blood of the rabbit inoculated on saccharated gelose yielded characteristic cultures: the bloody striæ traversing the surface of the gelose became bordered after twenty-four hours by a slightly transparent and opaline zone, consisting, as seen under a magnifying power of 100 diameters, of very fine granules. These cultures, examined under the microscope after coloration, showed the same microorganisms as were found in the blood; they occurred singly or in small groups, or inclosed in tiny portions of gelose.

These cultures served to inoculate a second rabbit, whose blood, in consequence, contained the same bacilli as existed in the blood with which the cultures on the gelose had been made.

From the rabbit the virus was conveyed to a large monkey, by placing two drops of sugared bouillon-culture into the nasal fossæ. It is highly probable—in the author's opinion—that the virulent agent penetrated into the pharynx and was swallowed: for there supervened very profuse diarrhea, with elevation of temperature (followed by subnormal temperature), prostration and drowsiness, which lasted several days. The day of inoculation the ape had a temperature of 37.6° C [99.7 F]; the next day the temperature rose to 38.5° C [101.3 F], and on the third day it was 39.5° C [103.1 F]; then it fell to below normal.

Similar bacilli were found in the sputa and in the blood of several patients with influenza, both during the febrile period and for several days after the subsidence of the fever. Blood of a young woman who had been affected with influenza for eight days was inoculated into the vein of a third rabbit's ear, without any further complication resulting than fever, pains in the limbs, and cough. The next day the animal had an elevated temperature, and as in the other two rabbits, there were numerous bacilli in its blood.

According to Drs. CORNIL and CHANTEMESSE, these observations and experiments, confirming as they do those of BABES, PFEIFFER, and CANON, permit of considering influenza an infectious disease, caused by a bacterium peculiar in its shape, in its behavior toward colorific substances, and in its method of culture.

The disease transmitted to the rabbit is not serious, though it lasts quite a while: the animals emaciate, lose appetite, and retain the bacilli in the blood for two or three weeks.

—On comparing recent researches on the influenza microbe with the numerous bacteriologic examinations made in previous years, it will be seen—according to the authors—that

complications of this disease with other microbic affections are very common, and that the grippal infection predisposes to all these complications.

As already mentioned, the influenza bacillus is very hard to detect on account of its extreme smallness and the difficulty of staining it. It grows slowly in gelose and sugared bouillon at 37° C [98.6 F]; but it is not easily transmitted from culture to culture in artificial media. On gelose the culture at the end of twenty-four hours presents the appearance of a fine trail analogous to a cloud of dew. In bouillon the culture is hardly distinguishable with the naked eye; the medium preserves its transparency, and is only studded with very fine granules.

ANGINA PECTORIS—PREVENTIVE TREATMENT.

In angina patients with *congested* countenances, alike whether the affection be due to aortitis or to arterio-sclerous myocarditis, Dr. CH. LIÉGEOIS (*La Sem. Méd.*) of Bainville-aux-Saules, prescribes, by way of prophylaxis, 30 drops of the following mixture morning and evening during the *last 10 days* of every month,—sodium iodide being given during the first 20.

Piscidia-erythrina Tincture.....	12 parts.
Veratrum-viride Tincture.....	2 “
Aconite Tincture.....	3 “

According to the author, nitro-glycerin is apt to provoke cerebral congestion in these flushed patients (it is only adapted to those with *pale* countenances and conjunctivas). This accident need not be feared with the tincture of piscidia erythrina, which is, by the way, a depressant of arterial tension and, besides, a good cardiac anodyne,—judging from the results Dr. L. has recently obtained with this tincture (20–80–100 drops daily) also in the treatment of permanent cardiac pains. The author adds the other two tinctures for the purpose of strengthening the arterio-depressant and sedative effects of the piscidia.

CHLOROSIS—PATHOLOGY AND RATIONAL TREATMENT.

According to Dr. ALBERT ROBIN, of the HÔPITAL DE LA PITIÉ, the process which ends in chlorosis is not a uniform one, and the chlorotic state does not arise from a constant modification of nutrition. He divides the perversion of nutrition capable of giving origin to it into three classes, as follows (*The Brit. Med. Journ.*):

1.—There is a disproportion between the destruction and the production of blood-corpuscles: destruction is excessive, regeneration insufficient. These cases coincide, in general, with excessive activity in nutrition, exaggerated organic disintegration which translates itself into an elevation of the coefficient of oxidation of albuminoid matter. The proportion of urea-nitrogen in relation to the total nitrogen eliminated by the urine, is in these cases from 82 to 89 per cent, instead of the normal figure of 80 per cent. The frequency of this variety is estimated by the author at three-tenths. It is remediable by drugs capable of combating abnormal katabolism. *Arsenical preparations*—which slacken nutrition and lessen tissue-change—are indicated in such cases; iron would be mischievous.

2.—The most frequent cases, and the best known, result from an insufficient formation of corpuscles. At the same time nutrition is languishing, assimilation insufficient. This condition of defect is expressed by the lowering of the coefficient of oxidation of albuminoid matters, which falls to 75 per cent in lieu of 80 per cent. This form is rapidly ameliorated by *iron*—which increases oxidation, stimulates nutrition, and gives an impulse to the phenomena of assimilation and the regeneration of red blood-corpuscles.

3.—The third group has numerous points of contact with the first. Here, too, there is excessive hemolysis, but the destruction of the corpuscles is consecutive to an alteration of the plasma of the blood. The medium appropriate to the vitality of the blood-corpuscles is far from being indifferent. A diminution

in the proportion of the salts of the blood-plasma, even slight disturbance in the relative proportion of these salts, suffices to bring about disassociation and death of the red cells. Dr. ROBIN has carried out researches which enable him to assert that, in a certain number of cases, the saline contents of the plasma are notably diminished. In these cases, before having recourse to arsenical or ferruginous treatment, he considers it necessary to replace the blood-corpuscle in its normal physiological medium; he therefore employs *saline medication*. He has constructed a certain number of formulæ which are as exact an expression as possible of the saline composition of the plasma. He employs habitually the following formula:

Sodium Chlorate.....	3 VII	[27.00 gm.].
Potassium Chlorate.....	3 V	[20.00 "].
Sodium Chloride.....	gr. LXX	[4.60 "].
Potassium Phosphate.....	3 III	[12.00 "].
Calcium Phosphate.....	gr. XLV	[2.95 "].
Magnesium Phosphate.....	gr. XXII	[1.40 "].
Potassium Sulphate.....	3 SS	[2.00 "].
Iron Carbonate.....	gr. XIII	[0.90 "].

The proportions are varied according to circumstances, and it is by tentative proceedings that he determines a formula exactly applicable to a particular case.

Dr. ROBIN was led to the conception of this third variety by the success obtained in the treatment of chlorosis at St. Nectaire and at Carlsbad,—that is to say, at mineral-water stations where the water contains no iron. One of his patients had been under care in various hospitals and treated with the usual medicines—that is to say, with compounds of iron, without being sensibly improved. She had no dyspeptic disorder. The examination of the the gastric juice showed no chemical alteration; she was therefore, *a priori*, a suitable case for profiting by the iron treatment. She took the composite powder described above for three weeks, and as a result recovered the greater part of her color, felt stronger, got out of breath less quickly, did not suffer from fatigue, and ate with better appetite. Her weight in this short period increased more

than 4 pounds, and after twenty-five days treatment she had gained 8 pounds.

GRIPPAL PNEUMONIA.

In these days of influenza, in which disease pulmonary complications are so common, the opinion of such a competent therapist as M. HUCHARD on the treatment of these complications may be worthy of transcription. In a paper recently read before the SOCIÉTÉ DE THÉRAPEUTIQUE, that authority (*The Lancet*) reminded his audience that the pneumonia observed amongst sufferers from the prevailing epidemic assumed various types. In some, the pneumonic fever belongs to the ordinary fibrinous variety,—the characteristic micro-organism being the pneumococcus. In another class of cases we meet with bastard pneumonia, in the non-rusty expectoration of which we find the streptococcus. This kind of pneumonia is apt to relapse more than once. Other varieties of pneumonia are those characterized by (1) rapid evolution with purulent expectoration; (2) pulmonary collapse, or “massive” congestion of the lung with gummy expectoration; (3) abundant, subcrepitant râles without a souffle,—death occurring from dyspnea and adynamia. Empyema or pulmonary gangrene may be superadded, and bring about a fatal result.

In all these forms the dominant factor is the state of nervous asthenia in which the patient is plunged, and, consequently, all modes of treatment should be directed less to combat the actual pulmonary lesion than to sustain the action of the heart, and, in a subsidiary degree, encourage the elimination of the toxins through the renal filter. This double object is attained by the administration of digitalis, given from the very commencement concurrently with an exclusively milk diet. M. HUCHARD has for a long time discontinued the employment of the infusion of foxglove,—preferring crystallized *digitalin* in a solution of 1 in 1000. Of this solution he administers forty or fifty drops (equal to 1 milligramme [$\frac{1}{64}$ grain] of the alkaloid) once a day for the

first two days. Should the prostration be profound, hypodermic injections of caffeine, ether, or camphor (in solution of 1 in 10 of sterilized olive oil), twice or oftener a day. If within a week a resumption of this digitalis treatment be indicated, half of the above dose is given.

Intestinal and buccal antiseptics is also given a prominent place in the treatment,—five or six wafers a day of 50 centigrammes [$7\frac{1}{2}$ grains] each of naphthol benzoate being relied-on for the one, and a mouth-wash of corrosive sublimate for the other.

Should the caffeine, ether, or camphor prove insufficient remedies for the asthenia, M. HUCHARD has recourse to subcutaneous injections of sulphate of strychnine—2 or 3 milligrammes [$\frac{1}{30}$ — $\frac{1}{20}$ grain] a day. In all cases the treatment is completed by the daily exhibition of one or two teaspoonfuls of a mixture composed of equal parts of kola tincture and coca tincture,—the vehicle employed being either a cup of hot milk, or diluted curacao.

INFLUENZA IN CHILDREN.

Contrary to the impression which appears to be prevailing that infants and small children are exempt from attacks of influenza, Dr. DAVID FUCHS of Budapest declares (*Allg. Wien. Med. Zeit.*) that they are not. Of course, it is difficult to diagnose the disease in such patients; but the fact that they frequently take sick, when their parents or nurses are affected with the grippe, is strong presumptive evidence that they too are attacked. The author has met with a large number of cases of influenza in young children, and states that the symptoms as well as the course of the disease are different in some respects from those occurring in adults. As a rule the attack is milder: its onset is sudden,—fever being the initial symptom; one day the child may be perfectly healthy, while the next day it is very sick without any premonitory symptoms having manifested themselves; the temperature usually does not rise beyond 39.5° C [103.1 F], although occasionally it reaches 40° C [104 F];

after twenty-four hours the fever begins to subside; sometimes cerebral symptoms predominate. A case is related in which a child of eighteen months was seized, without any warning whatever, with severe laryngeal symptoms, followed by convulsions,—the temperature rapidly rising to 40° C [104 F].

Vomiting is mentioned as a very common symptom. Next in frequency come affections of the mucous membranes; the conjunctivæ are injected, and catarrh of the throat and nose is present. In this stage the case looks like one of measles. The tongue is coated, and the little patient gradually subsides into an apathetic state. Older children generally complain of severe cephalalgia. The bowels are usually constipated, and occasionally there is a peculiar eruption, appearing first on the trunk and lower extremities, and assuming a papular form somewhat similar to the rash of variola. The extent of the eruption varies greatly, as does also the number of spots. . Bronchial catarrh, usually slight, frequently follows. After these symptoms have continued for a few days, the temperature falls to the normal, and the conjunctival and nasal inflammations disappear; but the other catarrhal symptoms last longer,—the annoying cough, in particular, being hard to get rid of. Considerable exhaustion supervenes: even by an illness of only three days a strong child will be very much run down. Although weakly children suffer more than strong ones, serious complications—according to Dr. F.—very seldom ensue,—pneumonia being but rarely observed.

The treatment recommended is simply symptomatic, and the use of antipyretics is discountenanced on the ground that they only tend to depress the patient; isolation is advised.

CARBOLIC ACID in 1:1000 solution is recommended by Dr. LABORDE as a preventive of coryza—the mouth and nasal fossæ being washed out regularly two or three times a day with the solution, used as hot as can be borne.

GATHERED FORMULAS.

31.—Syphilitic Alopecia (Treatment).

[RIETEMA — *Sem. Méd.*]

—POMADE.—

Ammoniated Mercury.....4 grammes [1 dram].
Corrosive Sublimate.....0.2 gramme [3 grains].
Vaselin... } of each.....20 grammes [5 drams].
Lanolin.. }
Rose Oil.....5 drops.

Externally!—Before applying, wash the head each time with a solution of Sodium bi-Carbonate.

32.—Neuralgia (Local Treatment).

[BERTRAND—*L'Union Méd.*]

—OINTMENT.—

Veratrine.....0.3 gramme [5 grains].
Morphine Hydrochlorate.....0.2 “ [3 “].
Lard.....30 grammes [1 ounce].

Dissolve the veratrine in a little alcohol before incorporating it with the ointment!—Apply during the paroxysm,—rubbing it in until the pain entirely disappears.

(Two or three inunctions, it is claimed, suffice for a cure.)

33.—Chloral Hydrate in Pertussis.

[JOFFROY—*Rev. Gén. de Clin. et de Thér.*]

—MIXTURE.—

Chloral Hydrate.....3 grammes [45 grains].
Potassium Bromide.. } of each 2 “ [30 “].
Ammonium Bromide }
Sodium Bromide.....4 “ [60 “].
Orange-peel Syrup.....60 “ [1½ fl. ozs.].

Teaspoonful to a dessertspoonful—according to the age of the child—several times daily, in milk, with yolk of egg.

34.—Chloasma hepaticum (Treatment).

[*L'Union Méd.*]

—PAINT.—

Ammonium Chloride.....4 grammes [1 dram].
Hydrochloric Acid.....5 “ [1¼ fl. drs.].
Glycerin.....30 “ [6 “ “].
*Virgin-milk.....50 “ [1¾ fl. oz.].

Apply to the spots with a brush, morning and evening.

35.—Silver Nitrate in Diseases of the Nerve-centres.—[MARAGLIANO—*Gazz. deg. Ospit.*]

—PILLS.—

Silver Nitrate.....1 gramme [15½ grains].
Glycyrrhiza Extract
Powdered Glycyrrhiza } of each a sufficient quantity.

Divide into 100 pills!—4 daily, increasing every 4th day by one until 10 are taken per diem. Never should more than one be taken at a time, and always at least 1 hour before or after meals.

36.—Hyperidrosis of the Hands (Treatment).

[*Journ. de Sciences Méd. de Lille.*]

—LINIMENT.—

Sodium bi-Borate } of each, 7.5 grammes [2 drs.].
Salicylic Acid }
Boric Acid.....2 “ [½ dr.].
Glycerin.....30 “ [6 fl. drs.].
Alcohol.....30 “ [9“ “].

Apply 3 times daily.

37 to 41.—Acne (Treatment).

[HERZFELD—*Aerztl. Prakt.*]

—OINTMENT.—

Naphthol }
Precipitated Chalk } of each, 1 part.
Green Soap }
Vaselin.....2 parts.

or:

Resorcin..... } of each, 2 parts.
Salicylic Acid..... }
Green Soap..... } of each, 3 “
Zinc Ointment..... }

or:

Precipitated Sulphur } of each, 1 part.
Powdered Starch..... }
Zinc Ointment.....3 parts.

or:

Salicylic Acid.....2-3 parts.
Lanolin..... }
Vaselin..... } of each, 10 “
Distilled Water..... }

—LOTION.—

Powdered Camphor. } of each, 3 parts.
Powdered Acacia..... }
Precipitated Sulphur14 parts.
Lime Water.....80 “

Apply at night, with a rag.

* VIRGIN-MILK (Rose-milk) is a cosmetic consisting of a mixture of 1 part of Benzoin Tincture and 10 parts Rose Water.

EDITOR'S NOTES.

NEW BOOKS.

MANUAL OF CHEMICAL TECHNOLOGY. By RUDOLF VON WAGNER. Translators and Editors: William Crookes, F.R.S., and Dr. Ferdinand Fischer.—D. Appleton & Co., New York, 1892.

The motto of this most worthy book is that "Experience should be fertilized by the researches of Science, and Science should be verified by the results of Experience."

No less a man than Ruskin gives the sage advice that our quiet hours being few "we ought to waste none of them in reading valueless books; and that valuable books should in a civilized country be within the reach of every one, printed in excellent form, for a just price." All this can be said of the excellent volume under consideration.

The scope of its technology—"the doctrine of the industries which improve material"—is almost limitless when we call to mind the great advances made in the sciences to-day. Its adaptation by the editors to the state of the country in which it is largely read, was made necessary by the existing differences in manners' prices of material and industrial processes.

The book in its entirety is a most comprehensive and exhaustive treatise on Chemistry and Mechanics, especially in their relation to the arts, and is for this reason of great value to those following these special fields of scientific research. To the medical scientist, however, and those especially interested in the chemico-physiological processes of the human organisms, certain chapters arrest more than passing attention.

In Section VI, on Articles of Food and Consumption, the author in speaking of starch gives a prominent place to the theory of the nature of starch by DAFERT, and justly so, as the composition-formula of it in common use to-day does not seem to express the nature of this body. DAFERT considers starch to consist of bodies which are "not mutually homogeneous (starch, cellulose, granulose, dextrose) a little sugar, protein compounds, amides, fat, and ash." This would make starch a mixture of several ingredients, to some degree dissimilar in their ultimate condition, and liable to many changes when under the influence of such ferments and organized bodies as may be met with in the intestines during the process of digestion. Under this section we have also a very complete account of the manufacture of beet sugar, an industry which promises soon to be one of great commercial value.

The author gives some very interesting reading on one of our most palatable articles of food—cheese. In looking over the composition of a large number of cheeses from different parts of Europe, one is struck by

the large percentage of nitrogenous matter which they contain. The Parmesan contains 44% of casein; the Gruyère, 31%; the Dutch cheese, 34%; and the Ramadoux 33%. These compared with the percentage composition of meat, which directly follows, place the cheeses as one of our most important, yet largely unused, food-stuffs.

The most interesting chapter in the book—especially as the value of food products, the dietary formulation and method of feeding, that we may obtain the most nutrition and power with the least expenditure of oxygen and force, are agitating the public mind—is that on nutritives. Nutrition to the body is made to fulfill a two-fold purpose, viz., (1) "the formation and preservation of the body; (2) supply and utilization of energy for the power of the entire body and its organs—*i. e.*, the production of heat, mechanical work and electricity." The author distinctly states that the first task is accomplished by the albuminoid substances. The largest percentage of available tension as expressed in animal heat, we get almost exclusively from the CHO substances, and this is natural enough, because they are more easily and quickly oxidized. The author places the perfect equilibrium between intake and output in the body of a vigorous man, during rest, as dependent on the ingestion of 100 grammes of proteid and 340 grammes of the combined CHO compounds.

While these quantities and proportions are not universally accepted as giving to the organism a diet which will yield the required foot-pounds of energy with the expenditure of the smallest amount of oxygen, they serve, nevertheless, to show approximately the great food value of a meat diet when compared to one of vegetable composition. The tables in explanation of this (p. 798) make the fattest kind of meat the ones to be most recommended; that fish, milk and cheese, are cheap in proportion to their nutritive value, and that smoked meats, poultry and game, are very dear. Also, that the "meats, eggs and milk are most completely utilized; vegetables much less thoroughly, as from 20 to 40 per cent are excreted undigested."

The author closes the chapter with these most significant sentences: "A powerful body can scarcely be built up and maintained on a purely vegetable diet. The small capacity for work of persons so fed is known."

We most heartily recommend this volume to those seeking for truth, and feel that they will never regret the time spent over its pages so pregnant with pure scientific knowledge, nor fail to appreciate the efforts of the publishers in producing a volume so clear, well printed, and substantially bound.

J. W.

STRICTURE OF THE RECTUM. A Study of One Hundred and Thirty-eight Cases. By CHARLES B. KELSEY, M.D., Professor of Diseases of the Rectum at the New York Post-Graduate School and Hospital; late Professor of Rectal Surgery at the University of Vermont, etc., etc.—Second Edition, Enlarged. New York.

In this little monograph of forty-eight pages the author starts out by giving the following classification of strictures of the rectum:

	Congenital	Complete.
		Partial.
Acquired	1. Spasm.	
	2. Pressure from Without.	
	3. Non-venereal.	a. Dysenteric.
		b. Tubercular.
		c. Inflammatory.
		d. Traumatic.
	4. Venereal	a. Ulceration (either chancroidal, secondary or tertiary).
		b. Due to unnatural vice.
		c. Neoplastic (gum-mata and rectal syphiloma).
	5. Cancer.	

The author then gives a concise description of the various lesions, their symptoms, diagnosis, and treatment in general.

Special attention is devoted to a detailed description of the operative procedures that can be utilized for the relief of these troublesome affections.

At the end of the text a tabulated description of all the cases is appended, so that at a glance the investigator can observe the final results.

The work is both interesting and instructive, and shows at once the good that can be accomplished by treating this class of cases intelligently.

BOOKS RECEIVED.

THE YEAR BOOK OF TREATMENT FOR 1892; a Review for Practitioners of Medicine and Surgery. Lea Brothers & Co., Phila. 1892. 8vo.; 486 pp. Price: cloth, \$1.50.

NUOVI STUDI SUL COLERA E SUI MICROBI.—By Prof. Dr. DOMENICO PATRONI, Strada Anticaglia, No. 24, Naples.

MÉMOIRES LUS AU CONGRÈS MÉDICAL INTERNATIONAL DE BERLIN dans les séances du 5 et 6 Août 1890.—By Prof. Dr. Z. PETRESCO, of Bucharest.

EIN NEUER BEITRAG ZUR INTRAUTERINEN ANTISEPTIS NACH GEBURTEN.—By Docent Dr. CAMILLO FÜRST, of Graz, (Austria).

UEBER DIE GIFTWIRKUNGEN DES SULFONALS.—By the same.

OUR INSTITUTIONS.

NEW BUILDINGS FOR THE JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA.

The Board of Trustees and the Faculty of the Jefferson Medical College have just completed the purchase of two large lots on Broad Street, giving them a frontage of about 300 feet and a depth of 150 feet, upon which they will proceed to erect at once a handsome hospital, lecture hall, and laboratory building. The estimated cost of the buildings is \$500,000. The hospital will be built not only as a suitable building in which to care for the sick and injured, but also will be provided with a large amphitheatre for clinical lectures. The basement of the hospital building will be given over to the various dispensaries, each of which will be provided with large waiting and physicians' rooms as well as rooms for direct teaching of students. The building will be absolutely fireproof, and patent sprinklers will act in case its contents catch fire. By the erection of three commodious buildings, the laboratories where delicate work with the microscope or apparatus is carried on, will be separated from the college hall where didactic lectures are given, and so will be free from any jarring produced by the movement of large classes. With the hospital on one side affording clinical facilities and the laboratory on the other side of the college hall for scientific research and training, the college will be most favorably situated for giving thorough instruction in medicine. Further than this, immediately across the street is the Howard Hospital, on the adjoining corner, the Ridgway branch of the Philadelphia Free Library, which contains all the scientific works belonging to this wealthy corporation. The new site is even more favorably situated in regard to the centre of the city than the old one at Tenth and Sansom Streets. The move has been made necessary by the large number of students who are now being instructed in this institution, and because the Faculty desire to keep the school and hospital in the foremost rank of medical education in this country. The buildings will be ready for occupancy in the session of '93-'94.

OBITUARY.

Dr. JOHN CONKLING, aged 85, at Port Jervis, N. Y., February 26; of the grippe. He was born in the town of Wallkill, Orange County. He studied medicine and practiced for some years in Milford, Penn. In 1830 he abandoned his profession and engaged in mercantile pursuits in Port Jervis. He amassed a large fortune and retired from active business in 1855.

Dr. WILLIAM R. GRISWOLD, at Chicago, Feb. 25. He was one of the oldest physicians in the city and had

practiced medicine there for thirty-eight years. Dr. Griswold was a native of Forestville, N. Y., and was graduated at the Albany College.

Dr. FRANK F. RANDOLPH, aged 52, at his home, No. 343 West Fifty-eighth Street, New York, from enlargement of the heart, brought on by an attack of the grippe. Dr. Randolph was born in Norwalk, Ohio, in 1840. He was graduated from Kenyon College, and studied medicine at Cleveland and at Ann Arbor, Michigan. He first began to practice his profession at Peru, Indiana, but afterward went to St. Louis. Upon the breaking out of the war he enlisted as assistant surgeon in the 18th Missouri Regiment, and was promoted for his skill. He was with General Sherman in his march to the sea. At the close of the war he went to Paris to practice his profession. Dr. Randolph was appointed in 1866 to the office of Vice-Consul under Consul John G. Nicolay in Paris.

Dr. DAVID HAYES AGNEW, Emeritus Professor of Surgery at the University of Pennsylvania and one of the most eminent surgeons in this country, aged 73, at Philadelphia, March 22.

Dr. Agnew was the son of a physician of considerable reputation in Lancaster County, Penn. He was educated at Jefferson College, Newark, Delaware, and at the University of Pennsylvania, where he was graduated in 1838. After a couple of years he began a course of lectures at the Philadelphia School of Anatomy. He maintained his connection with this institution until about 1862, and the estimation of his work is indicated by the fact that his last class numbered 265 members.

Dr. Agnew at the outset selected operative surgery as his specialty. He chose no special line, but for operations of all descriptions he was considered as a master hand. It is said of him that "as an operator he will be remembered for his consummate skill and heroic boldness, unmarred by rashness, and for his exquisite sensibility to the pain of his patient. In all of these indispensable qualifications for his lofty profession Dr. Agnew was excelled by few, if any, of the modern masters of the surgical art." In 1854 he was appointed one of the surgeons of the Philadelphia Hospital, and there a permanent memorial of his services remains in the Pathological Museum, which he founded and of which he was the first curator. In 1870 he was chosen to fill the chair of operative surgery in the University, and in 1871 that of the principles and practice of surgery. He also became professor of clinical surgery in the University Hospital. During the war he was consulting surgeon in the great Mower Army Hospital, which was maintained at Chestnut Hill during

the war. This hospital, the largest in the country, was under the care of Dr. Joseph Hopkinson and forty-seven physicians as a resident staff, while Drs. Agnew and Morton alternated as consulting surgeons. In this capacity all the most dangerous cases came under their notice and all the most trying operations fell to their hands. In October, 1888, Dr. Agnew presented to the trustees of the university his resignation from the chair of surgery.

After President Garfield was wounded in 1881, Dr. Agnew was called upon as a consulting physician. Toward the latter part of July, 1881, it was found necessary to use the knife on the dying President. Around the bed were a half dozen of the most eminent physicians of the country, but Dr. Bliss felt that there was only one surgeon present to whom the delicate operation should be entrusted. He passed the blade to Dr. Agnew. Among his works are: "Practical Anatomy," "Lacerations of the Female Perineum and Vesico-Vaginal Fistula," a series of sixty papers on "Anatomy and its Relation to Medicine and Surgery," and an exhaustive work in three volumes on the "Principles and Practice of Surgery." The latter work has been translated into the Japanese language, and is the great work of Dr. Agnew's life.

RECENT DEATHS OF MEDICAL MEN.

UNITED STATES.

Dr. HENRY CRUMLEY, of Chattanooga, who was born in Ohio in 1859;

Dr. CLAUDE M. JONES, of Boston, but a native of Worcester;

Dr. A. H. PAQUET, who was professor of Clinical Medicine in Lorne University, Montreal;

Dr. JEROME B. CORY, of Denver.

ABROAD.

Dr. JOSEF HOFFMANN, of Vienna, — for eighteen years director of the General Hospital of Vienna;

Sir GEORGE EDWARD PAGET, the elder brother of Sir James Paget, January 26;

Dr. ALEXANDER LUMNITZER, formerly Professor of Surgery at the University of Buda-Pesth;

Dr. COSTELLO, a sylographer of note in Madrid;

Dr. HEINRICH ROSENTHAL, who was editor of the *Allgemeine Medicinische Central-Zeitung*, at Berlin, February 7, 1892, of influenza;

Dr. CÆSAR CLAYTON, Surgeon in Ordinary to the Prince of Wales and Duke of Edinburgh;

Dr. ALFRED CARPENTER, the sanitarian and advocate of sewage farms;

Dr. GUSTAV FRITSCHKE, editor of the *Medycyne*, a Polish journal of note.

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Professor of Clinical Medicine and Pathology in the New York Post-Graduate Medical School and Hospital.
Foreign Staff:—See under "MEDICINE ABROAD."

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The Complimentary List of MERCK'S BULLETIN is restricted to: (1) Contributors; (2) College Libraries; (3) Journal Exchanges.

MEDICAL MEN who are inclined to communicate results of their thought or experience to their professional brethren through the Medical press, will feel interested in perusing our notice "TO EVERY PHYSICIAN," on page 294 of the present Number.

WIDER SCOPE!

There is a large field of usefulness open to the private practitioner—provided he be a wide-awake observer—in contributing to the improvement of Practice not only, but even to the advancement of Science, by communicating to the medical press such of his experiences and conclusions as may seem to him worthy of being adopted or investigated by his colleagues. When communications conceived in this spirit, and imparting appreciable information or instructive suggestion, reach us, we gladly open our columns to them,—though they may have the modest form and easy style of mere "Letters." To provide a special place for such useful off-hand communications,

we have, in our April issue, opened a chapter entitled: "PROFESSIONAL VIEWS ON MATTERS OF PRACTICE" (continued in the present Number,—page 268).

Deeming it desirable to reserve our chapter of "Medical Reports to Merck's Bulletin" for such Papers as are based on a definite and systematic course of Clinical experimentation or observation, we have recognized the need of devoting a Special Section to original dissertations on such new or newly applied drugs or remedial devices as have not yet had the benefit of a thorough series of clinical tests, but which promise, from what is known of them, to deserve further investigation. Communications giving such chemical, physical, botanical, physiological (animal-experimental), or other characteristic data on a drug or appliance or method as will tend to elucidate its therapeutic possibilities and point the way to its rational clinical trial, will be published in the newly-opened chapter of "PHARMACOLOGICAL REPORTS TO MERCK'S BULLETIN" (see page 251).

A third new section in our journal—"MEDICINE ABROAD—AS REPORTED BY OUR FOREIGN STAFF"—is explained in the statement next below.

OUR FOREIGN STAFF.

Cognizant of the fact that Science is not national, but international, we have taken especial pains to procure a better delineation of the PROGRESS OF MEDICINE IN THE OLD WORLD than could be given by mere abstracts gleaned from the European journals. We mean to present to our readers more than a mere reflex light from Foreign literature; we want them to hear the voice direct of Transatlantic authorities in Medical Science,—announcing, describing, commenting, and characterizing whatever is new and interesting that transpires in Medical affairs "on the other side."

In realization of this purpose, we have organized a FOREIGN STAFF, consisting of men eminent in their profession and known to the world as progressive workers in their particular domain of Science, not only, but also as appreciative and competent interpreters and critics of the labors of others.

These Regular Salaried Correspondents of MERCK'S BULLETIN will enjoy, in this journal, for the territory their work is to cover, the full dignity, authority, and liberty of action of EDITORS. Their views, expressed in our Foreign Department columns, will be their own. Thus, we hope to have done our best toward giving to the subscribers of MERCK'S BULLETIN an opportunity—unique in this country—of hearing directly, and without alloy or restriction of any kind, what some of the best representatives of Medical Science abroad have to say about, for, or against

the various events and movements constantly taking place in Medicine in the Eastern hemisphere.

—We open this FOREIGN DEPARTMENT to-day, on page 254, under the title, "MEDICINE ABROAD—AS REPORTED BY OUR FOREIGN STAFF," by some letters from a highly competent Medical scientist and observer: Mons. BAILLON, M.D., Professor in the FACULTÉ DE MÉDECINE DE PARIS.

By this *new departure* in American Medical journalism, we have again accomplished an important step in the realization of our aim at constantly enlarging the usefulness of MERCK'S BULLETIN and imparting to it an ever wider scope.

IRON IN THERAPY.

Chemistry has taught that an active acid is required, to cause the decomposition of saline compounds. Otherwise, some powerful kinetic action, like a strong current of electricity, must be instituted. As neither of these conditions are normally present in the blood-stream, lymphatic channels, or in the tissues generally, except in abnormal or pathological conditions, the inorganic salts pass in and out of the body unchanged.

As acids do not exist normally in the blood-stream, lymphatic channels, and tissues generally, this necessitated a more logical explanation for the apparent transformation of the inorganic compounds than the commonly offered vague and mysterious one: "some peculiar vital phenomena which govern cell life," which we find so frequently quoted.

In chemistry and its atomic theory, as it relates to the inorganic compounds, great certainty of action is conceded.

There is a strong tendency with many, however, to disregard all this certainty of action as regards processes within the animal economy, and to take cover in the mystery of what they call vital cell action.

Notwithstanding all this opposition to certainty of action, there appears to be an abundance of proof to show that the mineral compounds abide by and are controlled by the same definite laws of inorganic chemistry within the body, as hold true in the test-tube and retort.

Lack of a clear interpretation, and the dubious satisfaction obtained by falling back upon "vital phenomena" for all that is troublesome to explain in physiological chemistry, have long blinded the eyes of medical science.

The formation of the gastric acids has, however, been logically explained without deviating from the common laws that govern the chemical changes in the inorganic bodies. The hydrochloric acid of the gastric juice has been shown to split up in the intestines,—its elements entering into the formation of chloride of sodium and of hydrogen-di-sodium phosphate; thus keeping the quantity of sodium chloride eliminated equal to the quantity ingested.

In the study of the urinary changes the same exact laws of chemistry have been found to hold equally true.

Without a pathological condition followed by a vicarious action in the protoplasmic elements, not a single instance has been found in which this general law has not held absolutely true.

With iron and its therapeutics, this common law appeared to be somewhat in danger of infraction. Not that an opposing principle has been clearly established which perfectly explained the method by

which the inorganic iron salt entered the blood and was decomposed and joined to the proteid molecule to form the hemoglobin; but rather from the *lack* of a clear explanation of any kind as to how the iron was introduced into the system.

Recent investigations, however, have thrown much new light upon this subject, which, together with a close adherence to the fixed laws of inorganic chemistry, has largely if not completely relieved this difficulty. Through this advanced knowledge, the method by which the organic compounds within the system that contain an element of iron are formed and regenerated, is accurately explained.

Working backward from the body index,—the urine,—it has been proved that iron in an inorganic state is never found in the renal secretion, but when iron appears in the urine it is always in the form of an organic compound, that is, joined to carbon, hydrogen, nitrogen, oxygen, and possibly sulphur.

On the other side it has been as positively proved, that all forms of the inorganic salts of iron are never absorbed at all, and consequently cannot be taken up by the blood vessels of the entero-hepatic circulation.

Working back still further,—it is found that our food-stuffs contain iron only in organic combinations.

Therefore, it is pretty conclusively established that the organic combinations of iron are only produced as the results of anabolic processes in the vegetable kingdom in connection with *its* organic chemistry.

It is further established that all the iron found within the blood, lymph, and the deeper tissues of the animal economy is of necessity introduced through the or-

ganic vegetable compounds contained in the food, which are found in nature; or through the hemoglobin taken in the animal proteids,—which animal substance, however, had previously derived its organic iron compounds from vegetable diet.

It has also been shown by the observations of BUNGE and others, that the iron contained in this organic combination—be it primarily vegetable in origin or secondarily animal in nature—is quite loosely combined with the carbon, hydrogen, nitrogen, oxygen, and sulphur, constituting the molecule.

BUNGE further proves conclusively that the alkaline sulphides have a strongly selective affinity for the iron atom in these loose organic combinations.

It is also a well-established fact that alkaline sulphide compounds are frequently introduced with the food-stuffs. They are still more frequently developed in the alimentary tract in connection with digestive difficulties and conditions of sub-oxidation, in which the sulphur, instead of being eliminated through the gastric mucous membrane in the form of sulphuric acid, is given off as a by-product through the intestinal wall, thus forming sulphide compounds.

After these sulphide compounds have gained access to the alimentary canal from the external world, or by direct production in the canal from fermentative changes, or from the faulty oxidation of the proteids, the sulphur of these bodies has the power to rapidly abstract the iron from its loose combination in the organic molecule and quickly convert it into an inorganic and non-absorbable salt of iron; thus depriving the organism of its natural iron supply and in time developing an anæmic condition.

In this way we have a complete explanation for the development of the anæmic and chlorotic conditions so frequently encountered.

All this is in keeping with every-day clinical facts, which clearly show that the anæmic states of the system are always secondary to large losses of blood, or infectious and malarial diseases, or digestive and assimilative disturbances; *the latter* being one of the most potent factors of all, and one that is now capable of explaining many cases that otherwise must have remained absolutely in the dark.

We now have a complete and logical reason for the therapeutic effects of the inorganic salts of iron when they are introduced into the stomach; and an explanation which does not disregard the laws of inorganic chemistry.

Formerly it was taught that the iron salt administered (some preparations more than others) was in some mysterious manner drawn into the blood, and by some unknown process was decomposed, and thus yielded free atoms of iron to enter the hemoglobin molecule; and that the presence of this additional iron increased the capacity of the hemoglobin for carrying oxygen from the lungs to the tissues, and finally there was a generally increased oxygenating capacity, and thus the anæmia was cured.

All of which is at once overthrown by the established fact that the iron salts cannot be absorbed and taken into the blood.

If they were absorbed, the strong affinity of the iron for the sulphur would tend to load every proteid molecule down with one or more atoms of iron; or, acting in the opposite direction, the iron would rapidly abstract the sulphur from its loose

combination in the proteid molecule and fix it to the iron. Thus, the salts of iron in the blood in either case are absolutely incompatible with the functional activity of the physiological economy.

Following this line of argument, the therapeutics of iron, as explained by the observations of BUNGE, is plain and simple and does not at all disregard the laws of inorganic chemistry.

All the different salts of iron seem to be most efficacious when first acted-upon by the hydrochloric acid of the gastric juice and converted into chlorides.

The chloride salts of iron appear to have a strong affinity for the sulphur in the alkaline sulphides, and at once fix the sulphur in these compounds, before it has time to act upon the iron contained in the organic compounds introduced with the food-stuffs.

Thus the organic iron compounds of *the food* are prevented from undergoing decomposition in the intestinal tract, and are absorbed unchanged, carrying into the blood their full quota of iron in its natural organic composition. In this form the iron can be absorbed and utilized within the system according to the laws which govern the physiological utility of the organic compounds of iron.

A defective production of the gastric hydrochloric acid, or of the gastric juice as a whole, by depriving the alimentary tract of one of its preventives of putrefaction, is often a leading factor in allowing fermentative changes to be instituted, sulphide compounds to be developed, and anæmia to become fully established.

Defective secretion of *bile* is also another potent factor in permitting the development of these putrefactive sulphides, and in thus exciting anæmia.

When all these conditions are fully considered, and each one is allotted its proper importance,—by intelligently regulating the diet, and selecting a preparation of iron that will cause the least gastric and intestinal irritation,—with occasionally the addition of a little hydrochloric acid,—the sulphur of the sulphide compounds will be rapidly fixed by the ingested artificial iron salt. The iron of the organic food-constituents, in consequence, remains undisturbed and is not drawn off to be converted into an unabsorbable iron salt; it remains fixed in its organic molecule and passes on its course to reach the circulating blood. As a result, the hemoglobin will constantly be replenished by a liberal supply of *available* (that is: organically compounded) iron; which, together with a general improvement in digestion, absorption, assimilation, and oxidation, will increase not only the percentage of the hemoglobin in the blood, but also the number of the red blood corpuscles, until the normal standard is reached and the anæmia is cured.

All this has been accomplished without bringing in any vague and improbable factors or potencies. By closely adhering to the laws of inorganic chemistry, the whole problem has been elucidated, not alone upon a theoretical basis, but in accordance with actual clinical evidence of an abundant nature.

Many cases of anæmia get well without any iron; many instances are such that they are not benefited by any form of iron;—all of which is now easily explained.

Simple improvement in the digestion, and the arrest of fermentation, by retarding or arresting the formation of the sulphide compounds, will prevent the draw-

ing off of the iron from the organic constituents of the food, and will thus allow iron in the organic form to pass into the circulation and furnish to the system the natural elements for constructive work,—thereby finally curing the anæmia.

On the other hand,—if the anæmia is due to a generally faulty digestion, absorption, assimilation and oxidation of the proteids,—no matter how much of the iron salts may be given, unless that mal-assimilation is overcome, no good results will be obtained.

These facts and chemico-physiological laws, when closely followed up, fully explain all the action of the iron salts; elucidate the cases that recover from the anæmic state without iron, and show why a certain class of cases is not benefited at

all by the administration of any iron salts. Thus, moreover, we are placed in possession of certain exact knowledge by means of which we can more intelligently direct the administration of the iron salts.

In this connection, attention is called to the recent organic compounds of iron produced by Prof. KOBERT, known as *Hæmol* and *Hæmo-gallol*, and described in our February number(*). These compounds, in the light of our present knowledge regarding the therapeutics of iron, furnish to the profession two highly absorbable, organic preparations of iron, which can be used to supply any deficit in the absorbable iron contained in the food; and also to satisfy the affinities of the sulphides in the intestine and still leave a large surplus of available iron for absorption.

MEDICAL REPORTS

TO "MERCK'S BULLETIN."

PARENCHYMATOUS KERATITIS AND CORNEAL OPACITIES—THEIR TOPICAL TREATMENT WITH MERCURIAL OINTMENT.

By J. MITVALSKÝ, M.D.,

Lecturer on Ophthalmiatrics at the ROYAL AND IMPERIAL BOHEMIAN UNIVERSITY OF PRAGUE.

The local therapy of parenchymatous keratitis, aside from the prevention and treatment of possible complications, may have two different objects. First, it may strive to shorten the course of the disease, by aiming at hastening the process of inflammatory infiltration, and of the consequent vascularization which goes hand in hand with the absorption of the inflammatory products. In such a case the parenchymatous inflammation of the cornea goes through all its typical stages; but its duration is essentially shortened. As a means of attaining this object, we possess, principally, the lukewarm and warm lotions, which, by increasing the temperature of the

part and occasioning an increased flow of blood to the same, are perfectly adapted to assisting us in our purpose. However, it must not be forgotten that, with such an expedite treatment of the corneal affection, the reaction of the neighboring ocular membranes—which are themselves already threatened by the disease with inflammation—is increased, and that with such a therapy an inflammation of the iris, of the ciliary body, yea, even of the sclera is much more apt to appear, than if the disease were allowed to take its natural dragging course.

Secondly, we may endeavor to effect a shortening of the duration of the disease by striving, with the aid of suitable remedies, to fix, as it were, the disease in the present stage of its progressive development. The object of this therapy would be, therefore, to check the further course of the parenchymatous ker-

* MERCK'S BULLETIN, 1892; page 112.

atitis, in the stage of progressive inflammatory infiltration, and to effect the immediate absorption of the inflammatory products through the lymph-current; and if the parenchymatous infiltration has already arrived at the stage of vascularization, the aim would be, not to favor the further development of these blood-vessels, but to leave the remainder of the task of absorbing the inflammatory products likewise to the agency of the corneal lymph-current. If now we query our masters whether we have a remedy with which to attain the object just indicated, they will shake their heads in answer.

It is clear that only such drugs as are powerful sorbefacients and antiphlogistics at the same time, but which do not exert too irritating or alterative an effect on the corneal and conjunctival tissues, could be of service to us in attaining our purpose. These same could, as in other cases, be employed either in fluid or ointment form, combined with massage.

Starting with the idea just evolved, I directed my attention three years ago (in January, 1889) to the strongest of all local sorbefacients, to determine whether at all or in how far it would meet the above-mentioned requirements. I can now, after three years' careful probation of the remedy, assert, that in regard to the local resolvent action of BLUE OINTMENT in corneal affections, I have not been disappointed in the least.

The MERCURIAL OINTMENT of the pharmacopœias does not answer the purpose well, because, in the first place, it irritates the delicate conjunctiva and cornea too much, and, secondly, it is not of the proper consistency for absorption. However, by means of suitable attenuation and preparation of the OINTMENT with a well adapted constituent, the excessive irritation can be avoided, and the proper consistency given to the ointment. The following formula for dispensing MERCURIAL OINTMENT has served me best:

Mercurial Ointment (33%).....I part.
Vaselin.....2 parts.
Lanolin.....I part.

The ointment thus prepared is very soft, almost semi-fluid, and in regard to its permeating power and its innocuousness, leaves nothing to be desired. Applied to the eye, it adheres nicely to the anterior membranes, so that not even the tears can wash it away; and by means of massage of the cornea, either with the tip of the finger direct, or, preferably, with the eyelids, we can insure the steady absorption of the remedy. The majority of the patients treated in this way do not experience the slightest inconvenience; only a small proportion complain of a pricking sensation, which, however, soon passes away.

The action of the MERCURIAL OINTMENT in the local treatment of parenchymatous inflammation of the cornea, manifests itself differently according to the stage of the affection, and according to the way the case is otherwise constituted. It proves most efficacious, in the majority of cases, in the very first *stages of infiltration*. Whether the infiltration spread from the periphery of particular corneal quadrants, or whether it made its appearance in foci dispersed over the entire cornea, we attain with the MERCURIAL OINTMENT a comparatively prompt absorption of the infiltratory products in most of the cases, without a typical stage of vascular formation fully developing; the vessels either do not appear at all, or they show themselves only in restricted numbers.

The action of the MERCURIAL OINTMENT, just explained, produces curative results with greater certainty the less marked the pericorneal injection,—that is, the slighter the congestion of the ciliary body and of the iris; where the pericorneal injection is markedly developed, especially if there is photophobia and brow-ache, MERCURIAL OINTMENT is absolutely unsuitable; because in such cases these latter symptoms are invariably aggravated, and the eventual sorbefacient action of the remedy cannot sufficiently compensate us for the danger of an iritis or iridocyclitis. *The MERCURIAL OINTMENT can therefore prove exquisitely curative only in paren-*

chymatous inflammations of the cornea entirely unattended by irritation, or in those which are accompanied merely by mild ciliary symptoms of irritation. Of the correctness of the latter assertion I could convince myself innumerable times during the three years, in the congenital syphilitic parenchymatous keratitis, as well as in the corneal inflammations which made their appearance during the growth of the body; however, the best proof thereof was furnished by those cases in which, at the time of instituting the treatment, the one eye was in a more or less advanced stage of parenchymatous keratitis, while in the other the still healthy cornea began to cloud only in the course of the treatment. In a few of the last-mentioned cases I intentionally avoided a constitutional treatment, in order to be better able to assure myself of the local action of the MERCURIAL OINTMENT, and I actually succeeded in many such cases in checking the further spread of the infiltration while in its earliest stages, and in causing a speedy absorption of the inflammatory products already present. I could even convince myself also, that in cases where the corneæ were already totally compromised by infiltration, the eye which could be treated with MERCURIAL OINTMENT did not retain such dense and extensive corneal opacities as did the other eye, on which the employment of the remedy was contra-indicated on account of pronounced ciliary symptoms of irritation.

The question now arises how this method of treatment behaves when instituted in the stage of *vascularization*? Is it able to check the formation of the blood-vessels? Does it, possibly, favor the same; or does it have no influence at all on the process of vascularization?

In my experience I have observed once the one and then the other; the probable action of the medicament in this regard cannot be determined in advance.

For me the most important phenomenon was but the constantly concomitant essential shortening of the process of absorption of the corneal infiltrations.

Ciliary symptoms of irritation constitute a contra-indication to the use of the MERCURIAL OINTMENT also in the stage of vascularization. But as soon as the latter has reached its zenith and *the inflammatory process is on the decline*,—which is evinced by the non-irritability of the eyeball and by the smoothening of the epithelial surface of the cornea,—an intensive employment of the remedy again does excellent service: in a very short time the corneæ clear up, in most of the cases completely, or they retain but slight central opacities.

During the last three years I have had the opportunity of testing this mercurial treatment at Prof. SCHÖBL's ophthalmologic clinic in more than 100 cases of parenchymatous keratitis; whilst in the former years of my activity there, I regularly employed, in cases of this affection, only the general treatment, and the instillation of atropine to ward off complications, occasionally also the warm lotions to the eye. I have arrived at the firm conviction, that the duration of the cases suitable for the mercurial treatment often is shortened one-half or at least one-third, so that very frequently after but 3–4 weeks' treatment, the patients may be sent home. I again emphatically state that *this local treatment in no way prejudices the general treatment, nor the careful treatment with atropine*, and would also remark that 1% of atropine may be mixed with the ointment.

I am now coming to the report of the curative results, which I had an opportunity of observing, with *the employment of MERCURIAL OINTMENT of the above-mentioned composition as a means of clearing up corneal opacities of any origin*. It is a generally known fact that the best clarifacient conditions for corneal opacities of any etiology and localization are, young age and the lapse of a number of years; so many an unexperienced operator has been put to the blush by the spontaneous clearing up of the very leucomæ which he had some years before destined to tattooing, or even actually tattooed. Still, since time immemo-

rial, remedies have been hunted-for, which shall assist nature in this aim at clearing up corneal opacities. However, this is not the place to name all the remedies that have been proposed for this purpose; but I can, indeed, declare, with firm conviction, that all that have thus far been at our disposal are far surpassed by the local inunctions of the above-mentioned MERCURIAL OINTMENT. The latter can be employed with the best results as well in opacities consequent upon ulcerative processes of the cornea, as in those remaining after parenchymatous keratitis; of course, it must be used weeks, months, yea years—according to the case. Probably a part of the favorable clarifacient influence must be ascribed to the simultaneously employed *massage*. The use of the MERCURIAL OINTMENT for this purpose can be resorted-to daily and for an unlimited time, without thereby annoying the patient in any way; only very seldom, when the remedy was used too intensively in cases of recent opacities resulting from parenchymatous keratitis, did I observe a submiliary gray epithelial infiltration and slight ciliary irritation of the eye to manifest themselves; these symptoms, however, soon completely disappeared upon a few days' discontinuance.

I was led by my own notions as early as three years ago to the above method. However, in the midst of my therapeutic experiments, I learned from the April, 1889, number of the *Recueil d'Ophthalmologie*, that also DARIER had for some time been employing mercury topically in various ocular inflammations. He, too, praises this remedy, in combination with *massage*, as an admirable sorbefacient in corneal inflammations and corneal opacities; he uses it with lanolin ("Lanoline hydrargyrique").

I can warmly recommend the local mercurial treatment of parenchymatous keratitis, particularly if the course of the latter is unattended by irritation; also the employment of MERCURIAL OINTMENT as a means of clearing up corneal opacities of any kind.

Prague (Bohemia), Ferdinandstrasse 9.

THE PATHOLOGY AND RATIONAL TREATMENT OF THE URIC-ACID CONDITION.

By JAMES WOOD, M.D.,

Clinical Assistant in Pathology and Clinical Medicine in the NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL, etc.

Of all bodily derangements the most frequent and least understood by the general practitioner, is the so-called Uric-acid condition. In the general mind its existence seems to be limited to its more rare phases: gout and uric-acid calculi. This can be explained only by a general misinterpretation of cardinal signs or the neglect—incident to a busy life—of careful and thorough examination of the renal excretion. By this oversight, the abnormal metabolic changes of the body are allowed to progress; which, had they been recognized in their incipiency, could have been corrected and the normal changes and consequent good health maintained.

It is not in the scope of this paper to discuss the subject of gout and uric-acid calculi, but to speak rather of that state preceding these conditions, so that the education of our patients to a proper mode of feeding might follow its recognition, and the frequency of such a grave state be greatly diminished.

PROTEIDS AND CARBO-HYDRATES.

In the necessarily brief discussion of food in its relation to this subject we recognize but two general classes—the proteids and the carbo-hydrates. If we observe those animals which are most perfectly nourished and capable of doing the greatest amount of work with the least expenditure of energy, we will notice that their fundamental or primary food-stuffs consist largely of nitrogenous compounds and fats, with but a small part of starches and sugars.

That the difference between these two classes of food-stuffs may be appreciated, attention is asked to the following table, which shows very clearly what the complete oxidation of a proteid molecule will furnish to the body.

If a CHO compound—represented by starch, sugar, and fat—be submitted to the same conditions as the proteid in Table I (see next page); we obtain heat, energy, lubrication,

and elements producing rotundity of form only—the excretions being carbon di-oxide and water. The difference is at once evident, and this scheme of chemical action on each class of the food-stuffs gives us exact and final results and at the same time robs them of supposed virtues and places them in as distinct spheres of usefulness as their chemical compositions differ.

body, and especially if the CHO elements be in preponderance, imperfect results of general bodily oxidation must take place. If this supra-feeding should continue for a certain time with its resultant incomplete products, a devitalization of the protoplasmic elements of the hepatic cells occurs, with serious deterioration of the most important functions of the liver

[TABLE I.]				
The proteids	{ are capable of being converted into all forms of bodily tissue }	{ and yield elements for the production of }	{ heat, energy, muscular and glandular activity, lubrication, rotundity, and constituents for the formation of the ferments }	{ and are excreted from the body as { Urea, uric acid, kreatinine, carbon di-oxide, water, and sulphuric acid.

From a study of organic chemistry we find that, in the laboratory of nature, the animal economy cannot join free nitrogen to a CHO molecule and produce a proteid. Therefore, the whole office of this CHO class is limited to the results spoken-of above, and we see that no true constructive elements are furnished to the system. In no way therefore can one class be substituted for the other. Their unit of value as food elements is not the same. Again from practical laboratory researches it is found that the CHO class is much more easily oxidized into its final products than members of the CHNOS group and never stops short of this final condition of ultimate oxidation. This being so, the presence of the former, in quantity beyond what nature demands, exhausts the limited oxygenating capacity of the blood and causes the appropriation of that oxygen which should go for the complete transformation of the more difficult nitrogenous compounds. Thus, from an incomplete oxidation of these latter compounds, we get but partial metabolic changes; derangement of the organs of secretion and excretion rapidly follows, which in turn gives products antecedent to perfect metamorphosis, and the final result is a systemic poisoning.

Somewhere along the scale of this partial transmutation, uric acid is formed, and a glance at part of the practical oxidation table of Prof. W. H. PORTER will show how this occurs.

OVER-FEEDING AND ITS CONSEQUENCES.

Thus we see, if a larger quantity of food is eaten than can be perfectly oxidized in the

and kidneys. In consequence of these abnormal changes in such important organs and the decrease in the oxygenating capacity of the body, a host of incomplete katabolins is developed and retained to a large extent within the organism.

The fact becomes very prominent, therefore, that much of the ill health and almost all of the cases of uricæmia can be traced to the universal habit of overeating. A strong healthy individual whose life is spent entirely in the open air and at vigorous work can ingest greater quantities and varieties of food than is necessary to supply to the system the requisite amount of nutrition and energy, without suffering much from the indulgence. If the stomach does not reject this burden at once it is largely taken-care-of by the system. When the varied capacity in different persons for storage is exceeded, the organism balances the accounts by a period of vomiting and misery incident to a bilious attack. After middle life these attacks may become less frequent and the excessive amount of food is changed into fat and the individual becomes more corpulent, providing a facility for converting elements into fat is consistent with the constitution of the organism. Some people seem incapable of storing fat however rich the diet or sedentary their habits, and as this over-supply of nutritive pabulum must go somewhere, we find that it is but partially used by the system and the larger part exists in the organism as irritating elements, becoming a most potent factor in inducing functional derangement of the liver and

other organs or manifesting itself as gout, rheumatism, diabetes, etc., as shown by Table II. In persons of sedentary habits whose occupation keeps them in illy ventilated rooms for long periods and whose general system is consequently in a devitalized condition, nature is not so kind, but jumps at once to the more serious complaints.

EXCESSIVE FORMATION OF URIC ACID.

In both classes of individuals the quantity of uric acid in the urine is greatly increased, so that we consider the presence of an abnormal quantity of this acid in the renal excretion to show a condition of suboxidation of the nitrogenous elements of the food-stuffs. Had the nutritive compounds been completely transformed within the system they would have been eliminated as urea—a compound very soluble and easily handled by the organism in proper amounts.

The continued derangement of metabolism and the absorption of the products of but partial oxidation, leads to a profound state of malnutrition, with all its accompanying symptoms and sequelæ.

JAKSCH, in his investigations, found that in anæmia the precursors of uric acid in the blood united in that fluid instead of the renal epithelium, so greatly were the functions of the body at fault.

To recapitulate: there are, therefore, certain abnormal conditions of the body in which,—in consequence of disobedience to the laws of health in exercise, feeding, etc.,—the oxidation of the ingested food is below its proper point.—with results shown in Table II,—and uric and oxalic acids are formed in the urine in greater proportion to urea than normally. In the presence of such large quantities of uric acid in the urine, we have, therefore, one of the best diagnostic points of imperfect bodily change. When these and other compounds which are the result of this faulty action make their appearance in the urine or when the antecedents to the formation of uric acid are detained within the tissues, we have a condition present known as uricæmia.

[TABLE II.]

POSSIBLE PRODUCTS OF OXIDATION OF THE PROTEIDS OR "CHNOS" COMPOUNDS.—By Prof. W. H. PORTER.

Oxidation.	Proteid.	Oxygen used.	Urea.	Uric Acid.	Kreatinine.	Oxalic Acid.	Lactic Acid.	Glucose.	Hippuric Acid.	Carbon di-Ox.	Water.	Sulph. Acid.*
Highest.....	$\left\{ \begin{array}{l} C_{72}H_{112} \\ N_{18} \\ O_{22}S \end{array} \right.$	154(O)=9(CH ₄ N ₂ O)	(C ₆ H ₄ N ₄ O ₃)	+2(C ₄ H ₇ N ₃ O)						+63(CO ₂)	+37(H ₂ O)	+(H ₂ SO ₄)
Super.....		151(O)=7(CH ₄ N ₂ O)	(C ₆ H ₄ N ₄ O ₃)	+2(C ₄ H ₇ N ₃ O)						+60(CO ₂)	+36(H ₂ O)	+(H ₂ SO ₄)
Normal.....		139(O)=4(CH ₄ N ₂ O)	(C ₆ H ₄ N ₄ O ₃)	+2(C ₄ H ₇ N ₃ O)						+55(CO ₂)	+38(H ₂ O)	+(H ₂ SO ₄)
Uric Acid....		136(O)=2(CH ₄ N ₂ O)	(C ₆ H ₄ N ₄ O ₃)	+2(C ₄ H ₇ N ₃ O)						+52(CO ₂)	+40(H ₂ O)	+(H ₂ SO ₄)
Oxalic Acid...		129(O)=2(CH ₄ N ₂ O)	(C ₆ H ₄ N ₄ O ₃)	+2(C ₄ H ₇ N ₃ O)						+38(CO ₂)	+33(H ₂ O)	+(H ₂ SO ₄)
Lactic Acid...	$\left\{ \begin{array}{l} C_7H_{12} \\ N_{18} \\ O_{22}S \end{array} \right.$	94(O)=2(CH ₄ N ₂ O)	(C ₆ H ₄ N ₄ O ₃)	+2(C ₄ H ₇ N ₃ O)						+31(CO ₂)	+19(H ₂ O)	+(H ₂ SO ₄)
Diabetes...		76(O)=2(CH ₄ N ₂ O)	(C ₆ H ₄ N ₄ O ₃)	+2(C ₄ H ₇ N ₃ O)						+22(CO ₂)	+10(H ₂ O)	+(H ₂ SO ₄)
Hippuric Acid		67(O)=2(CH ₄ N ₂ O)	(C ₆ H ₄ N ₄ O ₃)	+2(C ₄ H ₇ N ₃ O)						+21(CO ₂)	+24(H ₂ O)	+(H ₂ SO ₄)

[TABLE III.]

TABLE SHOWING POSITION OF URIC ACID IN SCHEME OF SUB-OXIDATION.—Arranged by JAMES WOOD, M.D.

Oxidation.	Proteid.	Oxyg. used.	Urea.	Uric Acid.	Kreatinine.	Xanthine.	Hypoxanthine.	Carb. di-Ox.	Water.	Sulph. Acid.*		
Normal.....	$\left\{ \begin{array}{l} C_{72}H_{112} \\ N_{18} \\ O_{22}S \end{array} \right.$	139(O)=4(CH ₄ N ₂ O)	(C ₆ H ₄ N ₄ O ₃)	+2(C ₄ H ₇ N ₃ O)						55(CO ₂)	+38(H ₂ O)	+(H ₂ SO ₄)
Uric Acid....		136(O)=2(CH ₄ N ₂ O)	(C ₆ H ₄ N ₄ O ₃)	+2(C ₄ H ₇ N ₃ O)						52(CO ₂)	+40(H ₂ O)	+(H ₂ SO ₄)
Xanthine.....		135(O)=2(CH ₄ N ₂ O)	(C ₆ H ₄ N ₄ O ₃)	+2(C ₄ H ₇ N ₃ O)						52(CO ₂)	+40(H ₂ O)	+(H ₂ SO ₄)
Hypoxanthine.....		134(O)=2(CH ₄ N ₂ O)	(C ₆ H ₄ N ₄ O ₃)	+2(C ₄ H ₇ N ₃ O)						52(CO ₂)	+40(H ₂ O)	+(H ₂ SO ₄)
										52(CO ₂)	+40(H ₂ O)	+(H ₂ SO ₄)

* Appears in urine as a sulphate.

The urine in these individuals is found to be scanty, highly colored, and supra-acid. The specific gravity is from 1.025 to 1.040. The amount of urea is below the average normal percentage. Uric acid, urates, oxalates, and often bile-pigments and biliary salts are present. Such urine, by virtue of its departure from the normal composition, will remain acid for days or even months before the alkaline transformation is effected.

URIC ACID; NORMAL AMOUNT EXCRETED.

When the anabolic, metabolic, and katabolic activities of the organism are effected in their normal relation to each other, the urine will contain from .04 to .06 per cent of uric acid (the quantity of urine excreted in 24 hours being estimated at 1550 grammes), and will change in its reaction, becoming alkaline, in 24 to 36 hours. At different times during the day the amount of uric acid may be increased or diminished, according to whether or not food is taken in by the individual. Just after a meal has been ingested, the metabolic activity which is going on constantly in the body is greatly stimulated by the food and exhibits its highest degree of activity, and it has been observed that concomitantly with this condition the uric acid is more abundant, but the total per cent should not exceed to any degree the estimate given above.

Some might argue that uric acid, being a nitrogenous compound, was needed as a vehicle for the elimination of nitrogen. If we consider the insolubility of uric acid, it is very evident that nature meant, in man at least, the more soluble urea to accomplish that task. Considering this fact, we see that there should exist a certain relationship between urea and uric acid, and from very careful research and computations(*) of the quantity of the constituents of normal urine, it should exist in the proportion of 4 of urea to 1 of uric acid. The estimates made by PARKES, NEUBAUER,†) RANKE, and others, put it in the proportion of 45 of urea to 1 of uric acid, which probably

denotes the free acid only as found in the urine of the bladder, and does not take into consideration the amount which has already united with basic elements to form urates.

INDICATIONS OF URIC-ACID EXCESS.

When the proportion of 4 to 1 is not maintained as an average for the 24 hours, we may feel confident that bodily action is at fault. The common rule in this connection is that, according as the proper relation existing between excreta differs from the normal, so does health depart from its highest standard. Or in other words, in those pathological or sub-oxidative states the quantity of uric acid above the normal per cent determines the gravity of the condition. As an example we may state that, when an abnormally high percentage of this acid is continuously present, the organism becomes deranged and we have the peculiar condition of the body which is the precursor of gout. In certain pathological conditions also we find it increased, as in leucocythæmia(*), anæmia, etc. There are however a few individuals who are greatly troubled with distressing symptoms and whose urine shows an excessive amount of uric acid; but who are not such excessive eaters and take a great amount of exercise. It seems that they rob the system of its full quota of water by profuse perspiration, and not enough is left to keep the fluids in their proper density and the salts in a normal state.

WHERE THE ACID IS FORMED.

In considering, as we have, the influence of such a potent factor as uric acid in the production of abnormal conditions, we hold the ground that the antecedent compounds to its production are the result of a disturbed retrograde metamorphosis of the nitrogenous constituents of the food. It will be interesting, therefore, to consider where the uric acid proper is formed and eliminated.

The latest investigations on this subject seem to substantiate the grounds of GARROD(†) and PORTER(‡) that in the kidneys the normal for-

* *The Post-Graduate*, Jan. 1892, p. 52.

† Text-book, p. 381.

* H. RANKE, SALKOWSKI, (*Virch. Arch.* 43, p. 196), BARTELS (*Deutsch. Arch. klin. Med.*, Vol. 1, p. 23, 1866), and others.

† Lumleian Lectures. *Lancet*, Vol. 1, 1883.

‡ MERCK'S BULLETIN, Jan. 1892.

mation and excretion takes place; that in these organs, those elements which by their union are capable of forming this acid are seized upon by the epithelial cells of the uriniferous tubules, and converted into the compound known as uric acid.

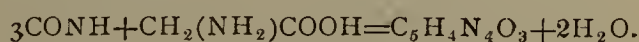
The later investigations of SCHRÖDER(*) are not in harmony with this view, but the grounds upon which he bases his belief are open to criticism. Some of his conclusions were drawn from abnormal states, which he had produced, and while the subjects of his investigation were in the condition of shock—as when he removed the liver and kidneys of a fowl, and then analyzed the blood or passed a stream of water through an extirpated liver, and then examined the escaping fluid. Very few, indeed, of the nutritive compounds as we know them before they enter the blood stream can be detected in that fluid. Nor are we able to find those circulating compounds in the same condition in the tissues—excepting of course in both instances the inorganic proximate principles, which are not changed in the body. The whole process of animal life is a constant metamorphic progression, only limited by the varied isomeric forms which the nutritive elements are capable of assuming under the pressure of organic influences. Consequently the position which this observer holds in regard to this acid can hardly be said to be of weighty importance.

Likewise, MINKOWSKI(†), after extirpating the livers of geese, studied the results on the excretion and constituents of the urine. His conclusions were: (1) that uric acid is chiefly formed in the liver; (2) that it is formed by the synthesis of lactic acid(‡) and ammonia; (3) that the uric acid found in the urine after extirpation of the liver was from xanthine and allied substances. Certainly, with such abnormal conditions present, the results of the experiment must be accepted with some reserve. When determining a condition especially physiological, we should strive to have

all environment in as nearly the usual and accustomed state as is possible; and in the degree as we depart from this, the results of our research will decrease in value. The experiments of both these observers were made on birds and reptiles, which naturally excrete the nitrogenous waste matter in the form of uric acid and urates, and do not excrete urea.

Let us look at a few facts which seem to substantiate the position taken of the formation of uric acid. What the antecedent bodies of uric acid are, is as yet unsettled. Many theories have been advanced, among which is one holding that the members of the uric-acid group of leucomaines, xanthine, and hypo-xanthine, are the uric-acid forming elements. LATHAM(*) believes that it is the result of a perversion in the change of glycocine into urea. In Table III (see page 241), we have the position of uric acid and its supposed precursors xanthine and hypo-xanthine in relation to normal oxidation.

This arrangement merely shows us that xanthine and hypo-xanthine are lower in the scale of oxidation than uric acid. It is our belief, however, from a study of like results in other chemical formations, which take place in the body, that these two compounds are but the result, like uric acid, of an incomplete metabolic change of a proteid molecule. STRECKER(†) thought uric acid analogous to the compound hippuric acid, and “as hippuric acid is a glycoll conjugated with benzoic acid, so uric acid is a glycoll conjugated with cyanic acid,” thus:



More knowledge of the intricacies of tissue change is needed, before the precursors of this acid can be demonstrated perfectly.

FORMATION OF URATES.

When uric acid meets salts—phosphates, carbonates, sulphates, etc.—in the uriniferous tubules, it splits them up and combines with such parts of them as are needed to form the various urates. The abundance of these salts depends upon the amount of uric acid and

* “Ludwig’s Festschrift,” p. 89, Leipzig, 1887.

† *Arch. f. exper. Path. u. Pharm.*, Vol. 21, p. 41, 1886.

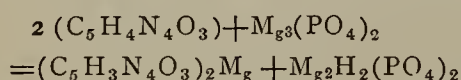
‡ The lactic acid found was sarco-lactic acid, which is known to have three isomers, totally different bodies.

* *Lancet*, Vol. 1, p. 485, 1884; Vol. 1, p. 1,120, 1885.

† *Liebig’s Annal.*, Vol. 146, p. 142, 1868.

mineral elements which are capable of being changed into urates. Their deposition occurs when we have concentration of the fluid in fever, inflammatory conditions, cirrhosis of the liver, etc., but is diminished in chronic diseases and gout, when it accumulates in other parts. The acid often appears in the urine as a fine granular deposit, usually of a brown or reddish brown color, and is known as the lateritious sediment; while the salts may be deposited in an amorphous state or as a sediment, the color ranging from white to a dark brown or muddy appearance.

The chemical action taking place in the tubules and resulting in the formation of a urate, can be better appreciated if we consider that the action of two molecules of uric acid on normal magnesium phosphate would be :

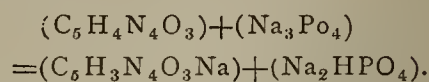


which reaction gives as its result, an acid magnesium urate and an acid magnesium phosphate. The same reaction applies also to the potassium, lithium, and calcium phosphates.

If this acid, whose combining strength is equal to our stronger acids, is formed in the liver, spleen, or any other organ except the kidney, and exists in a free state in the blood and in intimate relation to the various salts, as is thought by many observers, what is to prevent it from uniting in that fluid and forming the urates? Such we do not find to occur in a normal state of that fluid.

There is no exception to its formation and excretion by the kidney except in pathological conditions, as for instance in gout, where those antecedent products from the suboxidation of the proteids, which by their union would form uric acid, are excreted from the cartilages and other tissues of the body whose elements are in an abnormal relation to each other and converted into uric acid, as we find it in the kidneys. In these situations it comes in contact with the various salts, especially the sodium compounds,—probably the Na_3PO_4 ,—and there is at once formed an acid urate of soda and also a hydrogen-di-

sodium phosphate in place of the normal sodium phosphate, in this manner:



Thus we have the natural tendency for the decomposition of these bodies to take place wherever the uric acid meets the different salts. The symptoms substantiate the ground, and give us in this condition the phenomena of the organism endeavoring to rid itself by inflammatory incapsulation, etc., of this compound which acts as a foreign body. The profound irritation of the joint structures and intramuscular planes is all due to its presence. If uric acid as such exists in the blood and different tissues, why should it prove so irritating to the muscular planes etc.?

THE RENAL CELLS AND URIC-ACID SECRETION.

Clinical experience establishes the fact that, in those cases where uric acid is abundant and its presence in large amounts in the urine continuous, functional or organic derangement of the liver is the result, and associated with it we have hypertrophy of the renal epithelium. In this condition the amount of uric acid is diminished. In fact, this is well illustrated in the changes in both these organs and amount of uric acid excreted in diabetes. Again, when we have a lesion confined to the renal organs or primarily in their epithelial elements, the uric acid is below the normal per cent. In both instances the cellular portion of the kidneys was not able to accomplish its functional work. Some argue(*) that in gout the large quantities of the uric acid appearing in different tissues of the body, "without any previous disturbance of the functions of the kidneys, seems to show that uric acid is not primarily formed in the kidneys." Pathologists tell us that in gout the kidneys are the seat of a chronic nephritis with slight exudation, but with a very large production of interstitial connective tissue, and, in irregular gout, chronic diffuse nephritis. Also when the kidneys of a uricæmic are examined microscopically, it is a very common thing to find crystals of uric

* BUNGE: Phys. and Path. Chemistry, p. 342, 1890.

acid within the epithelial structures of the tubules. (*) This pathological and post-mortem evidence would certainly strongly favor the position advanced, that upon the normality of the renal cells depends the proper secretion and excretion of uric acid.

PREVALENCE OF URICÆMIA IN YOUTH.

From the almost universal habit of partaking of food whose nature as a nutrient compound is bad and whose quantity far exceeds the physiological demands, especially during early youth, some degree of uricæmia under 20 years is almost the general rule. Let us look at the frequency of uric-acid calculi and the age when they most frequently occur. From a large number of cases of calculi found in the bladder by English observers (†), 83% were of uric acid. In America the percentage is about 78. If we take the cases of CIVIALE, COULSON, and THOMPSON, numbering in all 10,467, we find that 6,524 or 62½% were under 20 years of age. In the statistics of 8,574 cases (‡) in this country, 4,986 or 58% were under 20.

The post-mortem research of careful observers shows that uric-acid calculi have their origin nearly always in the pelvis of the kidney. In connection with the above statistics, this fact very materially strengthens the theory that the constituent elements or antecedents of uric acid are normally united in, and excreted by, the epithelial cells of the uriniferous tubules as uric acid, which here meets the various salts and at once converts them into acid urates and mono-hydrogen compounds. This mono-hydrogen body is attacked by another molecule of uric acid with the formation of an acid-urate molecule, and a di-hydrogen compound of whatever salt has been acted upon. The amount of these salts which we find in the urine bears a certain relation to the normality of that fluid, the abundance of uric acid, and salts excreted.

We have shown the large percentage of cal-

culi which are composed of uric acid; their frequency during that period of man's existence—youth—when dietetic errors are most common; that the formation of these stones in the pelves of the kidneys is the usual rule; and when these points are considered, in connection with the other facts in regard to the place where uric acid is excreted, which we have endeavored to present, there is little doubt that the epithelial cells of the uriniferous tubules are the seat of this action. The practical significance of knowing where such an important body is formed, is that we may not in the treatment of such a case throw a larger complement of work on those already weakened structures, without at the same time increasing their nutrition. It is a common phenomenon of organic activity to rebel at imposition, and the result of such resentment may be the irremedial destruction of the part.

If such be the frequency, as we have tried to show, of the more severe type of this condition, how common must be uricæmia and how important the efforts to reclaim the physiological normality of the organism! Such we find to be the case that, when uric acid appears above a certain percentage (.04–.06) in the urine, we have a condition of suboxidation or derangement of those important organs which prepare our food, the gravity being in direct proportion to the amount appearing and the time necessary to cause the permanent disappearance of the abnormal quantity.

These uricæmics are greatly disposed, by the antecedents or isomers of this acid in the tissues, to congestive conditions of all the structures where such compounds exist, but more especially the naso-pharyngeal mucous membrane and the intramuscular planes. They suffer from dyspepsia, functional disturbance of the liver, palpitation of and peculiar feelings about the heart, bronchial affections, often iritis, eczema, and a number of peculiar symptoms generally known by the obscure term, neurasthenia. They are most sensitive to changes in temperature and atmospheric density, declaring they cannot live in certain local-

* PORTER: A Treatise on Renal Diseases and Urinary Analysis; p. 57; New York, William Wood & Co., 1887.

† London Cal. of Surg. Guy's Hos. and Norwich Hos.

‡ GROSS, in Diseases of Urinary Organs.

ities, and, in fact, suffer from general bodily derangement. We look at uricæmia in this wider and more general way and recognize its influence in connection with many of the vague abnormalities of childhood. Some observers have found as high as 30% of the children—especially those confined at school, troubled with neurasthenic and other incomplete expressions of defective metabolic action. A very large percentage of the nervousness and ill-health of young women has this condition as one of their chief ætiological factors.

TREATMENT OF URICÆMICS.

The management, therefore, of these individuals becomes of great practical importance. We can often correct in its primary stages an abnormality which, unchecked, may cause much misery or end in death. In undertaking this task, we must have ever before us the cause and those conditions which favor its continuance, the removal of which is necessary before we can expect success.

The condition of each organ which would be affected by our efforts should be inquired into, that we may sum up, as it were, the help which the whole organism will give us. After we have gained this knowledge to our satisfaction, we must attack the condition vigorously and promptly. Excretion of all kinds must be thoroughly stimulated and the refuse taken from the body by cathartics, sudorifics, diuretics, etc., remembering that the functions of the organs engaged in this duty are frequently imperfect. Then knowing that the condition depends on incomplete proteid oxidation, we must select a diet which our patients can completely oxidize into its final products and which will give to the body sufficient energy to sustain it in its vital action. The patient had best be limited to a skimmed-milk diet until the urine shows that the percentage of uric acid is nearly normal and the cravings for more solid food become unbearable. This may require from four to eight weeks, depending on the gravity of the case. The progress is slow and often filled with discouragement, but recovers even of the worst cases frequent.

The subject of further feeding is most important. We must select those food-stuffs which will give us the requisite amount of albuminous principles to meet katabolism or bodily waste—combined with sufficient of the carbo-hydrates to keep up the needed supply of energy. The relative proportion of each kind of food-stuff and total quantity(*) demanded by the system has been determined from experimental and practical working, and has reached a position of certainty which is truly scientific. The proportion between the two great food-classes should be 1:1. The amount, however, varies with environment amount of exercise, etc. The combined quantity of the pure nutritious elements which is needed by the system every 24 hours, in ordinary exercise, is from 10 to 16 ounces.

When these laws of proper feeding are obeyed, the products which are cast off by the body are in their normal state, and physiological replace pathological conditions.

162 St. John's Place, Brooklyn.

VESICATION of the nape of the neck is advised by Dr. SWAN as a successful treatment of *enuresis*.

ANTIPYRINE, given at the outset of *hepatic colic*, is reported to calm the pain and often abort the attack; later-on it is contra-indicated.

WILD ROSEMARY has been found to be a powerful diaphoretic. It is administered in infusion, in doses of 1½–3 drams (of the powder).

SALOL AND PHEN-ACETIN, of each 5 grains taken every 4 hours, has produced excellent results in the hands of Dr. B. BOWEN, in *facial neuralgia*.

HOT WATER, applied frequently and as hot as can be borne, has been lauded as one of the best remedies for *sprains*; the addition of sodium chloride to the water is considered beneficial.

* "The Feeding of Youth," MERCK'S BULLETIN, Feb. 1892.

THE THERAPY OF ABNORMAL URETHRAL DISCHARGES.*

By W. FRANK GLENN, M.D.,

Professor of Venereal Diseases in the MEDICAL DEPARTMENT of the UNIVERSITY OF TENNESSEE.

In order that we may intelligently treat the various abnormal discharges that can issue from the urethra, it is absolutely necessary that we understand the different causes of such discharges. Then we must consider each case in itself, and apply the remedy to remove the cause as quickly as possible.

THE VARIOUS CAUSES.

Now, what are the conditions that may cause a discharge from the urethra? Amongst the more prominent are to be mentioned gonorrhœa, stricture, granular inflammation and ulceration, chronic inflammation of the prostate, and inflammation of the bladder neck. Then, in order to successfully relieve an abnormal urethral discharge, we must determine accurately upon which one of these conditions it depends and treat properly that particular condition.

It is too much the habit of the general practitioner to regard every urethral discharge as gonorrhœa, give his favorite remedy, and inquire no further into the case. If the discharge still persist, he then tries, without any particular reason, one thing and another, until all his resources are exhausted and the patient no better, if not worse, than when he commenced treatment.

While some chronic discharges resist the most scientific application of remedies, the vast majority can be relieved promptly if the proper treatment is applied. Inasmuch, therefore, as this paper is addressed exclusively to the treatment of abnormal urethral discharges, I will proceed to lay before you what I conceive to be the most rational plan of treatment for each of the conditions mentioned as a cause of urethral discharge.

ACUTE GONORRHŒA.

If the discharge is dependent upon an acute gonorrhœa, the patient should be put upon a

mild, non-stimulating, but nutritious diet. He should avoid very salty food, pepper, fried meats, and alcoholic stimulants. I have never found any injury come from the use of broiled or roast meats (excepting swine), tea and coffee in moderation, butter, eggs, milk, and vegetables. I have never seen any good from a very rigid diet.

He should drink largely of some water that will cause an abundant flow of bland urine,—none better than Poland or Silurian. He should use a mild injection of chloride and iodide of zinc, thrown well into the urethra three or four times in twenty-four hours. Most cases of acute gonorrhœa, under this treatment, recover rapidly.

Where the disease has existed for a sufficient length of time to involve the entire urethra, injections applied with the ordinary syringe will not succeed. The entire urethra must be thoroughly irrigated with hot water, and then the zinc solution applied through the irrigator once every twenty-four hours. When this plan is properly carried out, both physician and patient will be delighted with the result.

I have also found amazing benefit from a one-to-seven solution of per-oxide of hydrogen, or weak solution of blue pyoktanin, applied as an irrigation. In fact there are many remedies which produce gratifying results if applied in this manner,—the good accomplished seeming to be as much due to the method of application, as to the remedy employed.

First cleanse the urethra thoroughly, and then apply either zinc, per-oxide of hydrogen, per-manganate of potassium, pyoktanin, iodoform, or nitrate of silver.

STRICTURE.

When the discharge depends upon stricture, it is of course, useless to hope to relieve it without removing the cause. Stricture being removed,—as a rule, the discharge ceases spontaneously. If it should persist after the stricture is thoroughly cured, proper irrigation will speedily stop it.

GRANULAR INFLAMMATION OR ULCERATION.

When the existence of a discharge depends upon granular inflammation or ulceration, the

* Read before THE ACADEMY OF MEDICINE, of Nashville, Tenn.

exact diseased spots must be located and a five-per-cent solution of silver nitrate applied every forty-eight to seventy-two hours, until the lesion is healed; then the discharge immediately ceases. If the lesion exist in the anterior urethra, it may be seen through the endoscope and the application made through the endoscope tube.

If it be situated in the deep urethra, it may be exactly located by a well-fitting bulb bougie, and the application may be made with a deep urethral syringe.

INFLAMMATION OF THE BLADDER.

If the discharge be dependent upon inflammation of the bladder neck or base, then hyoscyamus or aconite should be administered internally, and the patient kept as quiet as possible and on a mild diet. The bowels to be kept freely open with saline purgatives. The bladder and urethra should be thoroughly irrigated with a $\frac{1}{4}$ to $\frac{1}{2}$ -per-cent solution (hot) of salicylic acid, every twenty-four or forty-eight hours; then a one to two-per-cent solution of silver nitrate or pyoktanin or per-manganate of potassium applied to the inside of the bladder and prostatic urethra.

CHRONIC PROSTATITIS.

When a discharge exists, characteristic of chronic inflammation of the prostate gland, then we have to deal with that which is indeed difficult,—if not impossible—to cure. The usual history and symptoms of a case of prostaticorrhœa are like the following:—several months since, the patient had an attack of acute gonorrhœa, which in due time subsided and seemed to be getting well rapidly. It is well now, with the exception that a small drop or bead of glairy material is noticed, in the meatus urinarius, every morning on rising; and as a rule, at no other time during the day; although, in a few cases, it will appear two or three times during the day,—but this is exceptional. Upon questioning the patient you will find this to be the only symptom he has. He does not urinate unnaturally often, there is no urgent desire for micturition, nor the least pain during or following the act. Nothing disturbs

him except the knowledge of the drop of matter being in the meatus every morning. Now, what can we do for this class of patients? In so far as arresting the discharge is concerned, little or nothing can be done; but we can relieve our patient's mind at once; and as his mental brooding is his chief ailment, we virtually cure him.

We can and should honestly and conscientiously assure him that the discharge absolutely amounts to nothing, that it is non-specific, innocuous, and as harmless as saliva; that it does not and will not, in any degree, interfere with his general or local health, or that of his wife or children. Therefore he must pay no further attention to it,—not even look to see if the discharge is there in the mornings.

In nearly every case, when your patient is convinced of the real nature of his trouble and realizes that it need not interfere with his matrimonial intentions, he is perfectly relieved. When, however, treatment is insisted-on, nothing in my opinion offers more hope of relief than the introduction of his full-size Bougie (cold) every forty-eight hours, allowing it to remain in position from one to ten minutes. In addition, the application of the negative electrode of a galvanic battery for five to fifteen minutes every third day; using a current of about ten or fifteen milliamperes.

DEPRECATE UNNECESSARY ALARM.

In conclusion, let me urge you to consider urethral discharges as you would discharges from any other mucous membrane, remembering that, because it issues from the urethra, *it is not necessarily specific or inoculable*, but may be as harmless as a catarrhal discharge from any other mucous membrane in the body. Therefore, in their treatment, find out accurately the cause, and treat accordingly; and success will more frequently be the result.

308½ Cedar street, Nashville, Tenn.

SOAP LATHER is highly spoken-of as a remedy against *musquito-bite*; applied to the affected part, and allowed to dry on, it is said to relieve the burning at once.

DIPHTHERIA.

QUARANTINE AND DISINFECTION IN LIMITED APARTMENTS.*

By **HENRY DWIGHT CHAPIN, M. D.,**

Professor of Diseases of Children at the New York Post-Graduate Medical School and Hospital.

Probably in no other condition of the practice of medicine is the difference between sound theory and actual practice so painfully exemplified and contrasted as in trying to treat a case of diphtheria in tenements and small apartments. The physician may give his orders plainly, but he knows it is impossible to have them carried out with any degree of efficiency. The rooms are probably small and so arranged, that one communicates with another in such a way that it is very difficult to isolate any one of them. Still, the greatest isolation possible under the circumstances must be sought, and an end room will serve the purpose best. In many small apartments, the parlor is the only room unoccupied at night, and hence may be selected as the sick room, particularly as it is apt to be large and airy compared with others. The health and even the life of other children must be the argument used in favor of taking the best room for this purpose.

All superfluous articles having been removed, a sheet, wet with some disinfecting solution, may be tacked on the outside of the door. It may be stated at the outset that these few remarks are written more from the practical than from the bacteriological standpoint. While it is not contended that a sheet occasionally so wetted is a germ-proof barrier, it yet serves a purpose in more completely shutting in the sick room, and serving as a sort of danger signal to those without.

If possible, some adult member of the family may act as nurse, in the mean time not mingling with the others. Where the mother has to do all the work, she should have a loose wrapper to draw on in the sick room, discarding it upon her exit. I believe it is better to have the patient upon a cheap cot that can be

thoroughly cleansed or destroyed, rather than upon a bed or sofa that it will be hard to free of germs.

The room should be kept warm enough to allow a constant supply of fresh air, procured by dropping one of the windows a little from the top. This will not only have a favorable effect upon the patient, by diminishing the chances of his own re-infection, but lessen the risks of the attendant.

Some believe they have seen good effects produced by the constant evaporation from boiling water to which such disinfectants as turpentine, carbolic acid and eucalyptus have been added. This process certainly adds to the agreeableness of the air in the room, and the moisture may not be without benefit to the patient.

While as complete isolation of the infecting agent as possible must be secured, the destruction of the infective virus *at its source* will be necessary in order to secure the benefits of an effective quarantine. The pathogenic micro-organism of diphtheria is now pretty generally recognized as the KLEBS-LOEFFLER bacillus, which exists abundantly in the diphtheritic exudate but is not found in the organs and secretions of the body. As the seat of the diphtheritic exudate is, in the majority of cases, the throat and nose, the problem of the destruction of the infective virus is not so complicated as in some other infective diseases. If, however, this virus is not quickly destroyed at its source, the disease will be spread by its property of adhering tenaciously to many objects with which it is brought in contact. It is hardly necessary to enumerate the clothing, toys and books of the patient, sheets, blankets, and bedding, and various articles of furniture in the room as objects which may quickly and easily become contaminated and perhaps long afterwards communicate the disease.

The more the poison of diphtheria is allowed to become diffused, the greater will be the difficulty of controlling the spread of the disease by really efficient disinfection. Diphtheria will prove slightly contagious or widely

* Read before Section on Pædiatrics, New York Academy of Medicine.

contagious, according as active means are taken to destroy the virus as much as possible at its source, or allow it to become generally diffused. It must be remembered that in diphtheria we are dealing with both an infectious and contagious disease, inasmuch as it is originally caused by the invasion and reproduction of pathogenic microbes within the body, and that such microbes may be communicated from the diseased to a healthy body, starting a fresh attack of the disease *under the common conditions of life*; but that the degrees of this contagiousness or communicability can be influenced by the physician's art, and it is his duty to exert all the influence known to science in such a direction.

The direct contagion from diphtheria is limited to a small area, probably in most cases not more than a few feet from the patient. As the bacilli are situated principally in the superficial parts of the exudate, every effort must be made to disinfect *in situ* and thus destroy the contagium before it has opportunity to infect other bodies. I believe that if more attention were given to careful disinfection of the pseudo-membranes, and less to trying to dissolve or destroy them, the results would be better both for the patient and the other members of the family. To this end, however, no drug must be used in sufficient concentration to be locally irritating. A solution of carbolic acid in lime water, 1 to 200, or corrosive sublimate, 1 to 4000, employed frequently as a spray or gargle are valuable applications for the throat. Both may sometimes be safely used in stronger concentration; but, as a rule, it is better to use a weaker solution often. The frequent doses of tinct. ferri chlorid. and glycerin so commonly employed in the constitutional treatment of diphtheria, have a valuable local effect in disinfection as well. For the nose, which is highly sensitive, frequent irrigation with boric acid. The solution must always be warm. These disinfecting applications should be made as a rule every two hours, and in bad cases oftener. Much tact will have to be exercised in being as thorough

as possible without unduly annoying or exhausting the child.

While these efforts will reduce to a minimum the diffusion of diphtheritic virus, it is impossible entirely to prevent such a spread. They must hence be supplemented by a disinfection of all the objects with which the patient is brought in contact. The greatest danger being in the discharges from nose and mouth, old rags or bits of cheese cloth, after serving as handkerchiefs, must at once be burned. This valuable precaution can be easily taken in the most restricted apartments, and yet is often neglected. All clothing, bed linen, etc., that has been in contact with the patient, can be soaked in the solution recommended by the Board of Health, *i. e.*, sulphate of zinc 4 ounces, common salt 2 ounces, to a gallon of water. This solution is cheap and easily procured, and should be kept constantly standing in the room. Spoons, cups and all feeding-utensils can likewise be soaked in this solution, but all articles, after being taken out, must be subjected to thorough boiling.

When the case has ended, either in recovery or death, as complete a cleansing and disinfection as possible of the room and its furniture must ensue. All suitable articles must be soaked in the zinc solution and then boiled. Quilts, comforters, pillows, etc., may be thoroughly shaken on the roof and then exposed for hours to the fresh air and sunlight. The two latter factors form the most harmless but complete disinfectants that are known. The furniture, floors, walls and ceiling may be washed with carbolic acid, 1 to 20, or corrosive sublimate, 1 to 1000. These two reliable disinfectants frequently fail because of too weak a solution. The same preparation may be used to flush out sinks and water closets, as it is best not to multiply solutions. If the walls are papered, they may be rubbed down with stale bread crumbs, which bacteriologists have taught us collect the germs. The same may be done to the ceiling.

With reference to sulphur fumigation, while bacteriologists state that the fumes of sulphur-

ous acid do not destroy spores, it has always seemed to me well to employ this procedure when possible. It certainly has the effect of sweetening the air of a room, at least, and some practical workers in Boards of Health think it does good. A free application of moisture in the room increases its efficacy. The thorough airing required after the combustion of sulphur in a room may be a not unimportant factor contributing to its good effect. Cultures made with the bacillus of diphtheria have been found virulent after five months' retention, hence we can readily understand how tenaciously the poison clings to a room that has not been thoroughly cleansed and disinfected.

When diphtheria invades a family living in a limited apartment, where complete isolation is difficult if not impossible, the remaining children should be removed if there is any place to take them, until the illness is over, and the quarters have been disinfected. This, however, is just what cannot possibly be done in the great majority of instances, as no one wishes to harbor these poor children. To meet this dilemma, the recent report of the Com-

mittee on Hygiene of the NEW YORK COUNTY MEDICAL SOCIETY suggests that stations or refuges be established where such children could be housed until the sick at home have either recovered or been removed and the domicile disinfected. Houses arranged for such purposes ought to contain common dormitories, and private rooms for such as could afford to pay for better accommodations. If the city authorities could be induced to establish a few such houses in various sections, under the control of the Board of Health who would transport the cases upon notice from a physician, much good would be done.

Where the children *must* remain exposed, a constant irrigation or spraying of the throat with corrosive sublimate, and of the nose with boric acid solution, will aid in preventing infection. It is supposed that LOEFFLER's bacillus will not cause diphtheria when brought in contact with a healthy mucous membrane, and hence any agent that will cleanse and protect an exposed surface will help to prevent disease. It is also well to administer tinct. ferri chlorid. as a tonic.

27 West 51st St., New York City.

PHARMACOLOGICAL REPORTS

TO "MERCK'S BULLETIN."

CAPSELLA BURSA PASTORIS.

[A PRELIMINARY COMMUNICATION.]

By FELIX BARON VON OEFELE, M.D.

CAPSELLA BURSA PASTORIS (Shepherd's Purse) has several botanical relatives used as anti-scorbutics, or in diseases of the peripheral blood-vessels. It is one of the most widely distributed and quickest-growing of European field-weeds, and, of late, it has taken root and gained ground also in Australia. If cultivated, two crops a year may readily be obtained of it. In the spring, it is usually found on garden soil and along the edges of farm-fields and road-ditches, coming to seed before the grain harvests; after which, on the stubble-fields, especially on sandy soil and when an after-crop of turnips has been put-in, the weed

comes to mature seed a second time. That second generation, however, is found to be diseased from a parasitic fungus—*cystopus candidus*—which causes knotty incrustations in the stems and leaves.

The ancients seem to have taken no notice of CAPSELLA, wherefore the medieval botanists MATTHIOLUS, TABERNÆMONTANUS, and VERGASCHA did not deem it worth while to try identifying this herb with any of the plants described by DIOSCORIDES or GALENUS. Others, again, sought to establish a relation between it (even if only in the character of a species) and the *Thlaspi* DIOSCORIDIS,—deeming it irreconcilable with the high regard in which DIOSCORIDES was held, to suppose that he could have wholly overlooked a plant

which, as early as about A. D. 1500, was botanically and therapeutically an object of common knowledge.

The earliest medieval Latin designation for the CAPSELLA seems to have been "Sanguinaria"; but later-on this appellation was almost everywhere displaced by "Bursa pastoris." In the meantime it was also variably called "Capsella," "Gaudera," "Herba cancri," "Crispula," "Herba pastoris," and other names. Parallel herewith ran a variety of common names, both in the German and English languages. VERGASCHA, still using the antiquated designation of "Bloodwort" for it, explains this name by saying that this herb is the most powerful of all hemostatic herbs.

One of the earliest uses made of CAPSELLA appears to have been the topical application of its freshly expressed juice as a hemostatic after the castration of domestic animals. In the old German and Saxon materia medica, CAPSELLA held a position of honor. It was used internally as well as topically, in the shape of the fresh herb (in its absence: the dried), of extracts of the juice, and of infusions. A water distilled from the plant was also extant, but we cannot find particularly warm commendation of it anywhere.

Apart from its *hemostatic* qualities, CAPSELLA was also credited with *diuretic* powers.

It was used most largely in epistaxis, pulmonary and uterine hemorrhage, dysentery (particularly in veterinary practice), hæmaturia, and bleedings from surface-lesions. It was lauded repeatedly also in otitis, angina, jaundice, and spermatorrhea.

An inconvenience attaching to its internal use was found, even according to the notions of former times, in the huge doses of pints and half pints, *singly*. This circumstance, in conjunction with the then ascendant predilection in favor of foreign drugs of powerful action, sufficed to expunge CAPSELLA from the materia medica. But with the modern methods of preparing fluid and other extracts, such botanical remedies as the one in question are

being gradually rehabilitated in their therapeutic characters whenever they prove to be possessed of reliably active virtues; and in the case of CAPSELLA BURSA PASTORIS, this condition is actually fulfilled. (As early as four years ago, this journal called attention to the restitution of CAPSELLA to medical favor.)

My own clinical preliminary trials of this drug have shown the alcoholic preparations of it to be of small efficacy. On the other hand, aqueous infusions and extracts, including aqueous *fluid* extracts, have proved very promptly efficacious. In addition hereto, they are devoid of disagreeable taste; moreover, any other taste can readily be imparted to them by suitable correctives—which qualities distinguish this drug very favorably from all other hemostatics in present use, especially from *hydrastis canadensis*.

The dosage must not exceed 30 grammes [1 oz.] *daily*, nor 15 grammes [$\frac{1}{2}$ oz.] *singly*.

Hengersberg, (Germany).

THE PAMBÓTANOS.

By H. BAILLON, M.D.,

Professor in the "FACULTÉ DE MÉDECINE DE PARIS;" President of the "SOCIÉTÉ LINNÉENNE DE PARIS;" formerly Professor of Hygiene at the "ÉCOLE CENTRALE DES ARTS ET MANUFACTURES;" etc., etc.

The history of the Pambotano, properly speaking, is generally known. It is a Mexican remedy used in intermittent fevers and paludal accidents—a secret remedy revealed to General DE LA BARRA by a native of Mexico, to cure him of an attack of intermittent fever, which yielded easily to the action of the Pambotano. The general sent to France a specimen of the root which had cured him, and with it, unfortunately for his secret, some débris of leaves and flowers. Mr. VILLEJEAN, who received these débris, showed them to me in 1889; and I had no difficulty in recognizing the fact that they belonged to a *Mimosa* (*Leguminosæ*) called the Calliandra Houstoni, Benth. (and not, as it has often been spelled, "Callendria").

The group to which the Calliandræ belong, contains shrubs extremely rich in tannic sub-

stances; and Mr. VILLEJEAN, in the researches he undertook in collaboration with Dr. VALUDE, found that these plants contain no alkaloids, but only a tannin of a very astringent quality.

There are already more than fifty tropical plants, rich in tannin, which have been proposed to take the place of the quinquinas in the treatment of intermittent fevers. All these drugs, acting as tonics, stomachics and astringents, have been and will be successfully used in many kinds of paroxysmal fevers, but more especially in benign fevers, or in light though sometimes very persistent paludal attacks. As to playing the heroic rôle of the cinchonas and their alkaloids in the treatment of intense and pernicious fevers, the drugs in question cannot be counted-upon; and against one successful case here and there many failures must be looked-for.

A peculiar characteristic of the tannin of the *Calliandra Houstoni* is that it easily turns red in contact with the air. This particular characteristic, however, is to be found also in a plant belonging to the same group, closely related to the *Calliandra Houstoni*, and which is called the *Calliandra Grandiflora* Benth. The two plants are extremely difficult to distinguish, even botanically, one from the other, and I believe, therefore, that the *C. Grandiflora* may be safely substituted for the *C. Houstoni*; I have even learned that in Mexico the two plants are commonly called by the same name. The *C. Grandiflora* is the "*Inga Sericea*" of MARTENS and GALEOTTI, that is to say the "*Inga Anomala*" of KUNTH, noted during HUMBOLDT and BONPLAND's celebrated trip in Equinoctial America. The leaflets of its compound leaves are more numerous than those of the *C. Houstoni*, and smaller and more rounded, being without a curved mucrona at the apex.

The most interesting thing about the *Pambotanos*,—from a practical standpoint, if either or both plants should be utilized in Europe and America,—is that their cultivation is possible on the shores of the Gulf of Mexico, also

the Carolinas and Georgia; likewise in Southern France and on the shores of Algiers. As a matter of fact I have seen a quantity of *C. Houstoni*, with leaves and flowers well developed, which had been grown in the open air at Valencia, Spain; and it is probable that the *C. Grandiflora* is of still hardier growth.

In its uncultivated state we know of the *C. Houstoni* at Vera Cruz, Jalapa, Orizaba, etc.; but it is to be noted that it only grows on the mountain-side at a certain altitude.

The *Pambotanos* promise to take rank among the useful drugs.

BORIC ACID in 5% aqueous solution has been recommended topically in *red nose* not due to alcoholism.

CAMPHOR has been found to possess the power of increasing the *solubility of iodoform* in alcohol and in ether.

AMMONIUM BENZOATE, in 5-15 grain doses is considered by Dr. STEER about the most satisfactory medicament in cystitis.

STRYCHNINE is prescribed by Prof. DA COSTA in *fatty heart* with occasional attacks of pseudo-apoplexy— $\frac{1}{4}$ grain three times a day.

NITRO-GLYCERIN, conjoined with the use of iron, is regarded of great value in incipient *fatty degeneration of the heart*, and in *myocarditis*.

PILOCARPINE HYDROCHLORATE hypodermically, conjoined with the internal use of Camphor, is reported to have excellent results in *status-epilepticus*.

CAMPHOR 1 ounce, dissolved in Turpentine Oil 3 ounces, has been used in Columbia Hospital for Women to check the secretion of milk in *mastitis*. It is claimed that this application relieves the pain, diminishes the induration, and reduces the inflammation.

MEDICINE ABROAD;

AS REPORTED BY OUR FOREIGN STAFF.

European Editor: H. BAILLON, M.D.,

Professor in the "Faculté de Médecine de Paris"; President of the "Société Linéenne de Paris"; formerly Professor of Hygiene at the "École Centrale des Arts et Manufactures"; etc., etc.

{ Merck's Bulletin Office, 12 Rue Cuvier,
(Paris, April 4, 1892.

It will doubtless be interesting to the physicians of the New World to be posted as to the present state of medical science and practice in France.

French medical science is in a state of crisis,—latent crisis, if you wish,—but whose consequences will, before many years are over, be felt throughout the whole medical world. There is some truth in the oft-repeated statement that French medicine has lost much of its supremacy and authority in foreign lands; but perhaps this assertion has been carried to an extreme, and this, too often, without sufficient proofs to back it. On the other hand, a too great optimism should be deprecated; the evil must be acknowledged if it exists, and the causes searched-for in order to remedy them.

Pessimists cannot deny, however, that many things worth knowing and propagating are happening every day in this country, and it is only natural that we should wish to make mention of them every time that the occasion presents itself.

But on the other hand, as we repudiate any connection with any "coterie" whatsoever; and as in our independent position we wish to try and pass impartial judgment on doctrines and methods, the public will approve if, without descending at any time to personal attacks, we should criticise, from a disinterested point of view, anything which seems to us to be hazardous or imaginary, and naturally everything which does not breathe the most perfect and strictest integrity.

It seems to us that this simple declaration may well take the place of a more complicated "PROGRAM."

Without speaking of a great centre like Paris, where the most eminent illustrations of medical science are gathered together, there are in this country a large number of enlightened

and conscientious practitioners who observe well and whose aim is that their observations should be conducive to the well-being of humanity. Unfortunately, even in the medical world these men are not estimated at their real value, but are too often considered as ordinary hacks of practice. The evil-intentioned go still further and even treat these observers as fogies or as mere empirics. When this pretension comes from would-be scientists, richer in theory than in practical observation, it justly causes a smile; but how odious such action becomes when it originates from men more or less high-placed in the scientific hierarchy, but who are absolutely wanting in medical knowledge; and who in the name of an alleged superior science anathematize the common practitioner, boasting that they will teach the latter a science of which they themselves have not the faintest notion,—flattering themselves, in a word, that they will renovate medical science in a few years and, as they have textually said, teach it to physicians!

THE MICROBIAN SCHOOL

is the one, of all those alluded-to, which has been harshest in its treatment of the practitioner. A scientist of high rank, though little versed in medicine proper, told us recently that up to the present time medicine had wandered along in darkness and had always taken the wrong path until the moment when Mr. PASTEUR pointed out the true road. Another scientist, young it is true, declared openly in Paris that there would be henceforth two medical sciences: the one before PASTEUR, the other after him. A professor of the SORBONNE, who has never, to our knowledge, gone very deep into medical studies, asseverates in a work which has attracted some attention, that whereas some years ago there existed but one

microbic malady, there was perhaps none at the present day without its microbe.

Every one in France is not, of course, of this opinion. There have arisen in the medical world three unequal currents, which still exist. The first might be called that of the *status quo*. It is represented by a small number of men of great talent and great renown, belonging to the educational branches of the medical schools or to the staffs of the Parisian hospitals. With superior wisdom and an extreme reserve, they neither accept nor combat the idea of microbism; they await the affirmative or negative result of research.

A second group is composed of physicians disinterested or otherwise, who have adopted the so-called new doctrines from the start. Some are convinced (these are among the few), because of facts which they themselves have observed; and some are believers without examination, because they pin their faith to the sleeves of the masters. The latter class are of perfect good faith, because of published successful experiments; and, perhaps without understanding the actual reasons for these successes, they have believed from the first that here must lie the true path.

Others—and unfortunately they are very numerous—have ranged themselves on the side of the new doctrine only because they consider it to their advantage to do so. To-day there are but few positions easily acquired, few academic or other honors obtained without great effort; and, above all, few brilliant pecuniary situations except for those who turn toward the rising sun, who submit blindly, without examination, without discussion, without a shadow of hesitation or doubt. Here submission is absolutely necessary in order to succeed; but this very submission is evidently the cause of a profound demoralization which French science will regret later-on. But of what use is it to be astonished or indignant at what has existed from all time—the temptation to succeed quickly and without exertion, setting one's sail to catch the prevailing wind?

The third category is that of the opponents

of the new theories, few in number at first but whose ranks grow larger every day; representing a reaction which of necessity had to come. Often these opponents are men of talent: the public will long remember a clinical lecture given by one of the most prominent professors of the FACULTY OF PARIS which began by these words: "We might as well call this disquisition: 'The Rise and Fall of the Microbe.'" The professor in question has never changed his convictions, and the number of his followers is to-day considerable. While refraining from any insistence on this point, we may say in all security that the microbial doctrines have lost much ground in France in the last five years; and many believe that there will fatally come a time when they will be completely shipwrecked, viz.: the moment when they lose the backing of influences without the pale of science.

The doctrines relating to

THE CURE OF RABIES,

wrongly classed as they are with the preceding, but cut on the same pattern (although rabies cannot be considered as a microbic affection), will in all probability have the same fate; without its being possible, however, that so many opinions debated, so many questions discussed should not result in some lasting benefit to science. The opposition is becoming bolder from day to day, and here is the latest blow aimed at the anti-rabic practices, which appeared on the 15th of last month in the *Moniteur de l'Hygiène publique*. It is from the pen of a man of great talent, Dr. DUPOUX, whose words must be textually given, in order to show the state of the public mind in France to-day. A political journal, very moderate and rather governmental in its opinions, had published the following paragraph:

"Statistics gathered by the police authorities show that rabies has of late increased considerably. Thus, in 1890 there were 201 cases of rabies, and 61 persons bitten by mad animals, while in 1891 the number of cases of rabies rose to 400 and the number of persons bitten to 143."

Referring to the above, Dr. DUPOUY exclaims: "Such are the results of this famous method of inoculation with the marrow of rabbits suffering from experimental rabies. For Mr. PASTEUR all inoculations are called vaccination, because of his bookish convictions that vaccine and variola are of the same nature. It is really astonishing that the world should have so long tolerated the putting into practice of such scientific absurdities, and we really cannot believe that public officials will longer tolerate that a man who has made no study of medical matters should be allowed to propagate such a terrible malady as rabies, exceedingly rare in France before the creation of the Institute of the *Rue Dutot*. Every one knows, to-day, that in raising Mr. PASTEUR, fifteen years ago, to the rank of standard-bearer, the public only obeyed a very comprehensible patriotic impulse, but this impulse would really cost the country too dear if it were not moderated. Before many years, cases of rabies would swarm in this country; and besides we have not the time to await the death of Mr. PASTEUR in order to take the energetic measures which the situation demands."

We merely quote the words which precede, without siding with either party; and if Mr. PASTEUR should respond to Dr. DUPOUY we should be very happy to reproduce, here, his answer in his own words. But in this, as in many other things, we may say that in spite of the many tokens of admiration which physicians of both hemispheres have heaped on the PASTEUR'S theory, still "respect is a thing of the past." This is really characteristic of the French mind of our time, and especially characteristic of the medical mind.

A fact which may not be generally known on the other side of the Atlantic is, that the PASTEUR doctrines were for the most part condemned by the greatest physiologist of our time, CLAUDE BERNARD. The latter personally told us a few months before his death: "I cannot approve of PASTEUR'S theories; he

"sees nothing but microbes everywhere, and he does not see clearly; I will make it a point, soon, to combat his ideas."—I believe, however, that the two men were quite close friends, and consequently there could not have been, on BERNARD'S part, the slightest prejudice in his contemplated attack. A most disinterested man, never running after fortune and never having attained it, BERNARD never spoke or acted in any other interest than that of scientific truth. It will still be remembered what a turmoil was caused in the scientific world by PAUL BERT and Mr. BERTHELOT publishing the news of the existence of certain documents of CLAUDE BERNARD'S which condemned the PASTEUR doctrines. Some of these were printed, relating more especially to fermentation. Mr. PASTEUR answered the criticisms of BERNARD with that power of argument which characterizes the man, but without going to the bottom of things, and remaining slightly outside of the question. The discussion was greatly curtailed as BERNARD'S experiments had been very incomplete; but if death had not seized before his time this incomparable physiologist whom France still mourns, perhaps the microbic doctrines would have disappeared or else been modified considerably *by their author*, in one of those rapid evolutions which so eminently characterize him. The public would then have seen medical science generally undergo corresponding changes, and we are not sure but that it might have gone back in search of the old paths—which may yet happen in the near future.

Perhaps concessions should have been made on both sides—to-day it would hardly be possible; there is too great a distance now between Mr. PASTEUR'S scientific position and influence, and that of his opponents. For his part, he does not seem to care to stop to answer or discuss their objections.

Dr. LUTAUD'S book, notwithstanding its sharply outlined conclusions, has not created the commotion which could have been expected from it. The author pursues with much firmness the development of the idea that anti-

rabid vaccinations are useless and even dangerous. This, however, is the exact opposite of the conclusions of Prof. BOUCHARD, who declares that if he were afflicted with rabies, he would have himself inoculated at once!

To tell the truth, French physicians in general are tolerably indifferent on these questions. Some even carry their

SCEPTICISM

to an extreme concerning therapeutics and treatment. That Science *pure and simple* is a grand and beautiful thing, we certainly will not deny; but interest in one's patients and the obtainment of a cure are surely something; hence, the therapeutic art is still worth cultivating. That a very great physician, whom we know, should have gone so far as he has in the localization of lesions most difficult of diagnosis and that he should glory in his determination to go no further, is certainly worthy of consideration from a purely scientific point of view; but what would his patient say if he heard our scientist whisper in a colleague's ear that—after having discovered the nature and degree of the malady in question, its position and extent as far as it is possible—he would merely prescribe water and here and there, but not often, a little iodide or bromide of potassium? Would not this patient be justified in thinking that, as far as he is concerned, the consultation and the obligations imposed on him by it are really superfluous, and that—perhaps with a less scientific diagnosis—a more modest city practitioner, careful, attentive and well up in therapeutics, would suit his case much better and at less cost!

Happily this Scepticism *in therapeutics* is not generally known among the masses; or they might think that instead of trying to succor them, scientists merely let them die,—giving them the one advantage of having been useful to the progress of pathological anatomy!

There is, however, in Paris a school of opinion, which, far from disdaining medicaments, multiplies them continually and is always

IN SEARCH OF NEW REMEDIES.

If these are not all of great value, at least

they are tried, experimented-with; and necessarily some, among the many, will surely render great services to therapeutics. Among the most prominent of this school may be cited the name of Prof. GERMAIN-SÉE, who, at the HÔTEL-DIEU, is always on the lookout for new remedies and has brought into use some which are incontestably of great usefulness. But the most prominent and active representative of the school in question is certainly the eminent physician of the COCHIN HOSPITAL, Dr. DUJARDIN-BEAUMETZ. Although he does not belong to the Faculty, and when the last vacancy in a therapeutical professorship was filled, he only received one vote, still it may be said that with his ceaseless activity, his great love of progress, the care with which he molds his students and followers and sustains them in their efforts, this learned and amiable practitioner leads the new school of therapeutics. His experiments are multitudinous, and we shall have occasion, if he continues in the path he has traced out, to cite them frequently. To his hospital service he has added a laboratory of chemistry and bacteriology where much important work is done. Here, one of his preparators, Mr. DUBIEF, has written a short treatise on Bacteriology which all physicians should know, but, unfortunately, many do not. It is here that Dr. BARDET, chief of the therapeutical laboratory, makes his chemical analyses of new medicines, the results of which are so often published in the *Nouveaux Remèdes*—published by O. DOIN. It is also here that Mr. EGASSE writes his "*Therapeutical and Pharmaceutical Information*," usually printed in the same publication. As for the general-in-chief of this little therapeutical army, so active and so well disciplined, it may be said that he is everywhere. His regular demonstrations are on hygienic therapeutics, on bacteriology, and general clinical subjects, and their principal results are published in a journal edited by himself.

It may be said that he has really started
A NEW SCHOOL,
outside of the official world of tuition, where

students flock, especially foreigners, who are sure of a good reception and a moral backing which they are not sure of finding elsewhere. When they come to the end of their studies and stand in need of a subject for their theses, they have the material amassed in the service placed in their hands. There is always some new remedy, generally introduced from abroad, being tried on the hospital patients, or some old-fashioned medicament which has been disused, perhaps wrongly so for many years, and with which new experiments are being made. The student is given one of these subjects, which he adopts, and from which, if he wants to work hard, he can derive much benefit.

We do not pretend to say that this scientific and practical activity always gives the results which one might expect. Young students very often are impatient to obtain their diplomas, and shorten entirely too much the researches with which they are intrusted; too often the results are incomplete, because their teachers have not the time to give to beginners who are wanting in elementary scientific education and in the method which ought always to be present in thoughtful medical researches, and which can only be acquired by the study of the fundamental sciences. The chief of the school himself is absorbed by the exigencies of a large practice, by academic work, official reports and, in a word, by the thousand things which are expected of a great physician; all these detract from the perfection of the work done.

The publishing of

A GREAT WORK,

two years ago, entitled "*Indigenous and Exotic Medicinal Plants—Their Therapeutical, Pharmaceutical and Commercial Uses*," was certainly an excellent idea. Messrs. DUJARDIN-BEAUMETZ and EGASSE had for their object a new inventory of the numerous plants which are utilized in medicine for the treatment of the sick. It undoubtedly proved a most useful compendium of Modern Therapeutics, as far as medicaments of a vegetable origin were concerned; but we doubt whether the authors themselves can feel satisfied with this work of

compilation, quickly done, without eclecticism, without discrimination and without much personal supervision,—full of errors, insufficiently illustrated, and, in a word, too defective, as a whole, to last and be truly useful. While the idea is excellent, yet the rapid execution has actually caused too much to be left undone; and as much as we must be thankful to the authors for their idea, yet we could have wished that it had been realized in a more complete and thorough way. If this be impossible in a country where books sell little or poorly, and where publishers of scientific works are forever on their guard against the peril of a too costly publication; yet in the New World this may not be the case and the grand idea of DUJARDIN-BEAUMETZ may be taken up some day and carried to a really successful end by an institution like MERCK'S BULLETIN.

The matter is really urgent, and we may exclaim, as in days gone by: "*Caveant consu-les!*"

If, especially from a therapeutical and materia-medical point of view,

OUR FACULTIES

forget, to a great degree, that they are *professional* schools, the medical press makes it a point to take them to task. In the discussion which arose over the project of a new law on the Practice of Medicine and Pharmacy, it was said, in so many words, of our schools that, because of the scepticism of certain professors and the indifference of others to anything outside of their private practice, their students were reduced to "depending on themselves for instruction," and that, consequently, there was really no reason for having any professorships at all. This is, doubtless, going too far; as the means of instruction are more numerous than ever before. But one thing which is true is that official higher education is allowed, in too great a measure, to fall into the hands of private teachers and "coaches" who are thus intrusted with teaching young physicians the nature and properties of drugs, posology and the art of prescribing; thus, students, if they wish to become actual practitioners, are forced

to have recourse to a gallop-course of professional teaching whose usefulness, however, is undoubted; and they are forced to look elsewhere than in the official institutions for practical advice, or else must attempt to teach themselves.

In a great centre like Paris, it is always possible to get good, sound teaching. Masters are plentiful, and so are specialists who are not ordinarily of common stamp. The extreme embarrassment of a young physician may be imagined, when he starts-in to practice medicine in some retired part of the country or in some small village, where his only resources are his *Materia Medica* and some medical gazette hastily read. He will often be subjected to the criticism of his druggist, if there is one in his district; and after he is fully convinced that he is making mistake on mistake because he has not a sufficient insight into medical and therapeutical subjects, he will regret his lost time and will learn his profession at the expense of his patients, since he did not learn it at the medical schools. He will, of course, be the first victim of his paucity of study in the lecture room, but unfortunately he will not be the only one; many an innocent patient will have to pay dear for the doctor's lack of proper training.

In France,

POLITICS

interfere, to quite a damaging extent, with the study of Medicine, as it has ever interfered, more or less, with all sciences and all studies. Of course it is difficult, when one is young and ardent of conviction, not to take sides in our internal political quarrels; and yet what a difference, with a few exceptions, between *our* future physicians and those ancient doctors of medicine who, in the austerity of their temper, made of their art a truly sacerdotal function, and who worked on without respite, never considering themselves learned enough, and always putting every chance on their side in the great struggle against disease.

If the foregoing Preamble should have interested our readers,—showing them, in a few

words, the present status of the medical question in France,—we may delve still further into the subject in our further communications, into the very heart of the question itself,—and therewith giving successive corroborations of our manner of looking at the subject in general.

April 8, 1892.

As much noise will, doubtless, be made over the

TRANSFUSION OF NERVE-MATTER, as was over hypodermic injections of the juice of testicular substance. Dr. CONSTANTIN PAUL, who is well known for his therapeutical works, is the one who broaches the subject. (*)

Persons affected with any form of neurasthenia—be it tabetic, chlorotic, or other—are treated by injections of a liquid made of the brain of freshly killed sheep. Preferably the cerebellum, the cerebral convolutions, the corpus striatum, etc., are used. The mode of preparing these will be shown below.

For the hypodermic injection a region is selected where, because of its greater looseness, the subcutaneous cellular tissue moves most freely between the skin and the sub-jacent tissues. Among the available regions are the inguinal or the lower dorsal, near the lumbar. The latter is deemed the more favorable in cases of rhachialgia; because the closer the propinquity of the point of injection to the seat of pain, the more efficaciously is the pain calmed. But it happens, despite the laxity of the connective tissue of the regions mentioned, that in some lean and emaciated patients it may be so little mobile, that a small quantity of the liquid injected, equal to perhaps 5 cubic centimetres, is not diffused, but remains agglomerated in a walnut-sized lump. This is no reason for alarm, as the tumor generally is dissipated within 12 hours. Special precautions are, however, taken to avoid pain and septic results. To prevent the latter, the spot selected for the injection is rubbed with a strong solution of phenol. To preclude pain, a jet of

* See, also, "Brain-substance in Neurasthenia," page 278 of the present Number.

ethyl chloride is projected upon the skin as follows:—A little vial thereof, made according to BENGUÉ's method, is warmed in the hand; as chloride of ethyl boils at 10° C, the heat of the hand suffices to produce a pressure which projects a fine jet of the liquid. This vaporizes on contact with the integument, which generally is completely anæsthetized within a few moments.(*). The syringe, before use, has been sterilized with boiling water, and then with carbolated water. Its steel needle is also sterilized; but not by fire, which dulls the needle in destroying its temper. A fold of the skin is pinched up, into which the needle is inserted perpendicularly. Then the point is freed, and one, two, three, four or five cubic centimetres of the liquid are injected.

This liquid is transparent, colorless, neutral, and of a density of 1.080 to 1.090. The essential to its use is careful preparation, as follows: Fifteen grammes of the above-designated brain substances are divided into small fragments. They are left to macerate for 24 hours in five times their weight of pure glycerin. Then 75 grammes of distilled water are added and the mixture filtered by the ARSONVAL apparatus (which will be described further-on) under a pressure of between 40 and 50 atmospheres;—the process thus yielding a total of 150 grammes of a ten-per-cent solution.

The action of

ARSONVAL'S APPARATUS

is based on the use of liquefied carbonic acid. For the purpose described, an apparatus like that of Mr. CHAMBERLAND would not do; the latter is useful enough in filtering broths for bacteriological cultures, or other liquids not rich in albuminoid or mucilaginous substances; but it cannot serve to filter liquids charged with colloid or viscous matters, like glycerin.

ARSONVAL's apparatus was devised for rapidly filtering liquids without allowing the air or oxygen to act on them. The liquid being filtered is subjected to a kind of sterilization which the author denominates "physiologi-

cal,"—which takes place apart from mechanical and physical sterilization due to the action of the filter itself. The liquefied carbonic acid accomplishes that end. As the lymph, which may be said to constitute the real natural medium in which the elements of the multi-cellular organism live, is already saturated with carbonic acid, and holds very little oxygen, it is therewith admitted that the organic liquids operated upon, are not altered by the carbonic acid used in the process. Pure, anhydrous carbonic acid is used, prepared according to CAILLETET's process, and supplied in steel cylinders containing $\frac{1}{2}$ to 10 kilogrammes of the acid in a liquid state, under a pressure of some 60 atmospheres. The cost is about 16 francs per kilogramme.

The ARSONVAL apparatus is composed of a reservoir for the carbonic acid and of a filter, contained in a sutureless metallic tube. Within this tube is a ROUX AND CHAMBERLAND's filtering bougie, 15 millimetres in diameter. The mass of which the bougie is composed varies in porosity according to the liquids to be filtered. If, for instance, it were proposed to rapidly filter defibrinated blood,—as the globules would tend to obstruct the interstices of the bougie, its maximum porosity would be required. However, in filtering blood, the globules are now-a-days preferably destroyed by preliminarily freezing the defibrinated blood.

But, for filtering glycerin charged with the juice of sheep's brain, the ordinary CHAMBERLAND bougies cannot be employed; the pressure would crush them at once. After screwing the filtering-tube to the reservoir containing the carbonic acid, the whole apparatus being perfectly tight, the reservoir is put into communication with the filter. The gaseous carbonic acid rushes into the tube and exercises the enormous pressure of 40 to 50 atmospheres, measured by a special manometre adapted to the apparatus. Under the influence of this pressure, sufficiently rapid filtration is obtained. The liquid is received in a test-tube. With this apparatus and 500

* For details, see "Ethyl Chloride—a Local Anæsthetic," in MERCK'S BULLETIN, 1892; p. 29.—[ED. M. B.]

grammes of carbonic acid, 50 to 80 litres of the liquid can be filtered, according to its greater or lesser viscosity. The reservoir contains half a kilogramme of carbonic acid in the liquid state. It is understood that we do not enter into the technical details of the manufacture of the apparatus, nor into the manner of using it. This apparatus is now on the markets and can henceforth have a place in all physiological and pathological laboratories.

The liquid obtained by the process above indicated is claimed to produce, upon the nervous system, an effect analogous to that which transfusion of blood exercises upon the economy. Neurasthenic patients are said to be stimulated and to recover their strength. The

ELEVEN CASES RECORDED

by the author of his treatment may, at first glance, appear conclusive.

Among them is a man aged 40, affected with locomotor ataxia, who, after receiving 40 injections in six months, has no more pains and whose motions have become co-ordinate and easy.

Another ataxic patient, 59 years of age, had 40 injections in eight months. His strength revived, his motions improved, and his pains diminished.

Still another ataxic patient, 42 years old, after 40 injections in seven months, experienced a reduction of nearly all the morbid phenomena, and his strength was increased.

An ataxic woman, aged 24, who moreover is a morphinophage, had pains that exhausted her. They diminished after five injections, made in three weeks. Treatment being suspended for about two months, the pains reappeared. The treatment was then resumed for a month, and, after an injection every third day, strength returned and the pains disappeared. They reappeared on substituting simple water with glycerin for the special liquid. But on again employing the injection of cerebral substance during seven months, considerable amelioration was obtained, and the pa-

tient materially reduced her consumption of morphine.

A man of 70 for a long time had extreme debility; his pulse beat 36 times per minute. After a *single injection* of five cubic centimetres, his pulse rose to 60, and at the end of five months the patient continued well.

In a chlorotic, neurasthenic woman, seven injections in two months are reported to have re-established her strength, while her weight increased 13 pounds. This patient is considered cured.

Another chlorotic woman was also cured. Her strength returned, and her weight increased over 7 pounds in six weeks, after eight injections.

A third female patient, who is deemed entirely cured, increased 18 pounds after twenty injections made in three months.

A man 29 years of age had since several months grown incapable of any work whatever. After twelve injections of from 1 to 5 cubic centimetres given him in twenty-four days, he entirely regained his strength.

The history is also presented of a man of 35, with tabes and neurasthenia, equally impotent intellectually and physically. After twelve injections of from 2 to 5 cubic centimetres, his sufferings ceased and his strength was entirely restored.

DR. CONSTANTIN PAUL'S GOOD FAITH is above suspicion. He took all precautions against any premature conclusions. His experiments were prudently made during nearly a year, and he did not report results, save when he attained complete certitude. Naturally, he was met with doubts; he was asked whether he had protected himself adequately against the causes of error to which the subject, or its surroundings, or the method of observation, or the observer himself might give rise. Further criticism might be made, relative to the hygienic treatment which the patients must certainly have been obliged to follow; to coincidences, and also to those illusions so frequent in neurasthenic patients. It is evident that the matter will be largely discussed; and also that

in both hemispheres a great number of persons will give sick people most earnest counsels and lay before them most pressing offers of treatment, addressed "To the Debilitated" generally, — but particularly to those whose resources enable them to have themselves treated expensively for their physical and mental disabilities. For, it must be observed, while congratulating the author thereon, that *he makes public* the formula of his treatment and of the delicate manipulations it entails.

All this is evidently based upon the principle of Dr. BROWN-SEQUARD'S much-noted treatment with hypodermic injections of testicular juice. The wisest people, who did not *a priori* reject conclusions which may have appeared extraordinary, assumed that the testicles might secrete some zymotic substance, capable of actively stimulating the functions of the nervous system. It is well-known that

EATING TESTICULAR SUBSTANCE

has been lauded as a means of obtaining the same end. It may be asked whether this would not apply to the cerebral substance as well, and why asthenic and other debilitated patients are not made to eat sheep's brains. That would be simpler.

On the other hand, it is not intelligible, if it be not for avoiding local accidents, why so many antiseptic precautions are employed in the preparation of a medicament received after filtration in an open, non-sterilized test-tube and put into a syringe which is necessarily exposed to the atmosphere. It has been proven that the liquid, as it leaves the filter, contains no micro-organisms. But, aside from its ability to preserve itself, it may be asked what influence a few microbes, more or less, can exert in a liquid that has such remarkable properties. Trials of the liquid, to which chloride of sodium was added, have been reported. This mixture is of less density than the liquid first mentioned, and also undergoes alteration more quickly; this is not easily explained. At the end of five days changes are apparent in it: while the unsalted liquid remains good easily for ten days.

For the present we can desire only that further observations and trials be made, without any spirit of prejudgment, entirely independently, by other physicians than the distinguished author of the method.

April 11.

Discord decidedly reigns in high medical circles here, regarding the questions of

PUERPERAL INFECTION AND CONTAGION.

It is fortunate, when considering this confusion, that practice hardly suffers therefrom at all, and that, whatever the theories, puerperal infection tends more and more to disappear. It is exactly the same state of affairs as prevailed when the extremely useful methods of Sir J. LISTER were in question. In reality, as we said on another occasion, this great surgeon merits the title of "benefactor to mankind." That is the principal point. But, in theory, the explanations given are certainly insufficient. This applies to puerperal infection as well. Professor TARNIER aptly said, in the ACADEMY OF MEDICINE (and many others said it before him), that the terrible mortality among parturient women which formerly was considered a somewhat normal fact, has now almost entirely disappeared, thanks to antiseptic measures.

In our opinion it were better to say: thanks to the employment of "absolute obstetrical cleanliness," which, as we have elsewhere said, differs materially from ordinary cleanliness. Whether antiseptic measures are used or not, — when persons of both sexes who have parturient and lying-in women in their care have not absolutely cleansed the recesses of their skins, of their nails, and, we may add, of their garments and of their instruments, they are not in a state of "obstetrical cleanliness," as the students of the MATERNITÉ themselves call it; and disasters may be expected as a result.

In the explanation of the facts, however, the members of the ACADEMY OF MEDICINE of Paris do not at all agree. That institution contains fervent partisans of microbism, who do not always understand it thoroughly and who defend it too much in the style of those

supporters of the anti-rabic inoculation, who hurt the method by the exaggeration of their impossible statistics,—as Professor BOUCHARD explained long ago. On the other hand there are the anti-microbists, who combat the theory with weapons which they are told are worn out. But, in fine, nothing like a conclusion is reached, and there is good reason to fear that matters will long remain in the same state.

Messrs. HERVIEUX and GUÉNIOT, according to Mr. A. GUÉRIN, are re-opening a campaign

AGAINST THE MICROBIAN DOCTRINE,

and he seems to accuse them of confounding both purulent infection and septicæmia proper, with mephitism, for it should be well noted that in the ACADEMY OF MEDICINE OF PARIS mephitism and miasms are still spoken of as well-defined entities. Happy were those times, now far gone, in which hygienists declared that miasms were vague and intangible things of which, in brief, neither the nature nor essence was known. If our great scientists continue to confound things which resemble each other least, we will soon return to gaseous mephitism or infectious odor, which erstwhile was asserted to act so sadly upon the organism.

On the other hand, Mr. GUÉNIOT asserts that Mr. A. GUÉRIN appears to have confounded septicæmia with pyæmia and that “under the influence of mephitism, that is to say the absorption of certain putrid gases emanating from decomposing organic matter, “a special septicæmia is produced.” And he adds that, in his opinion, “this septicæmia is “produced by the septic vibron.” It would be, then, a gaseous substance—the air—which would carry the septic vibron into our bodies. It should be noted that we live in an epoch in which

THE AIR IS BEGINNING TO BE ACCUSED of often carrying the schizophyte of typhoid fever into our organisms; and probably there will soon be a return to the so-much-combated idea, that the air carries the noxious schizophytes to the stumps left by amputation.

At the same time, Mr. A. GUÉRIN declares

that he “never denied poisoning by putrid “emanations;” only he is “far from admitting “that their action is exercised by way of the “lungs.” To enable it to be exercised, lungs that are not intact are necessary; and he believes that nothing is more rare than healthy lungs in man. But where is there a lung sufficiently healthy to not permit the introduction of microbes? And even if this inroad should not be possible,—contrary to the opinion imputed by Dr. HERVIEUX to Professor BOUCHARD, that schizophytes penetrate “through “the surface of the pulmonary alveoli,”—it would not follow that the liquids with which the microbes are covered or which they themselves can secrete, do not pass through the same surface. It is, in fact, a very singular matter that in this present era of ptomaines and leucomaines, so many physicians always mention only the microbes by themselves, without at all taking into account the liquids they carry everywhere with them. And let us note that all this happens at the very heart of the ACADEMY OF MEDICINE OF PARIS, where medical science is represented by whatever is most eminent in the country; and that in this same Academy, as reported in its own “Bulletin,” one of the most distinguished practitioners said that, as for antiseptics, he preferred phenol, because it is a volatile body and therefore could rise in the air to combat the microbes which therein are found suspended.

In our times it is hardly surprising that beginners who are young, and not very anxious to learn, neglect to read, from indifference, the elementary treatises on these subjects; but what should be said of the academicians, who are not obliged to express opinions?

May the fate of the erstwhile so much discussed and highly praised “specificity of ferments” be remembered! It contains a sign of the times. And is the mind not beset with doubts on the score of the *specificity of morbid microbes*, at an epoch when the typhus bacillus characterizes pleurisies, and when the simple *bacterium coli* is pointed out as the sole culprit of a typhoid infection?

RATIONAL DIETETICS:

STUDIES FOR "MERCK'S BULLETIN."

FOOD VALUES.

IV.

Cows' MILK.

Probably no one kind of food-stuff is more extensively and universally used than cows' milk. It is frequently a substitute for human milk during infant life. By a large class it is used as a common daily article of food. In disease, it usually holds the first place among all food-stuffs. Therefore, an accurate knowledge of its composition and possibilities as an article of diet is absolutely essential.

COMPOSITION.

The composition of the cows' milk, as of human milk, is subject to variations depending upon the period of lactation. The breed of animals also varies the composition, and the kind of food upon which the animal is fed largely governs the quality of the secretion. The physical and nervous temperament of the animal will also influence the quantity of the product and the percentage composition of the milk secreted.

With all these conditions modifying the composition there is, however, a wonderful general correspondence in all the analyses made. The composition from which our calculations have been made is the following: Each 100 parts of milk contains 88.23 water, 3.73 proteid bodies (which include casein and all the different forms of derived albumin that may be normally or accidentally found in the milk), 4.50 fats, 4.93 saccharine constituents, and 0.60 mineral salts. This particular table of composition calls for a little more milk-sugar than is sometimes found in human milk. Some analyses, on the contrary, are published in which the reverse is given as the normal standard; but the sum of a large number of analyses shows that the difference in percentage of sugar between human and cows' milk, either way, is not worth quibbling-over.

AMOUNT REQUIRED DAILY.

Taking the above figures as the standard, it is found necessary to take into the system one hundred and fifteen ounces, or a little more than three quarts of milk per day, assuming that it is all utilized, to secure the requisite amount (130 grammes) of proteid matter to carry-on the constructive work of the system during the twenty-four hours. From two to six per cent of the proteid matter contained in the milk passes through the alimentary canal undigested. It is therefore necessary to take from three and one half to four quarts of milk daily, to get the 4.19 ounces (130 grammes) of proteid matter into the circulation.

With this there will be utilized by the system about 5.17 ounces (160 grammes) of fat, 5.67 ounces (176 grammes) of milk-sugar, and 0.69 ounce (11 grammes) of saline matter. There will also be introduced from 101.45 to 115 ounces of simple uncombined water in connection with the milk, which is in itself a very important factor, and can be looked upon partially in the light of a therapeutic agent, as well as from a dietary standard. The full value of the water will be more fully explained in summing up the practical utility of milk, both as a dietetic and therapeutic agent.

OXYGEN REQUIREMENT.

Applying the same rules of computation that have been used in the study of the other food-stuffs investigated, it is found necessary to use 45,222 oxygen units to completely transform all the proximate principles contained in the above-cited amount of milk into their final products for elimination. This, as with the other food-stuffs, has been so arranged as to yield the same amount of nitrogenous excrementitious elements to be eliminated by the excretory glands, as resulted from the other food-stuffs. But there is a much larger manufacture of carbon-di-oxide and water, with milk, than has been found in connection with any other

food-stuff computed. The high percentage of fat in the milk is the chief cause of this larger production in the carbon di-oxide and water, and it is also the reason for the large expenditure of oxygen.

The increased amount of water to pass through the system, aids in holding the solid excrementitious substances in a more perfect solution. It also acts favorably upon the kidneys and keeps the tubules well flushed-out, and also helps to draw the excrementitious particles through and out of the epithelial cells lining the tubules.

HEAT AND ENERGY PRODUCED.

The total quantity of heat and energy or mechanical work developed out of the ingestion and oxidation of these 115 ounces of milk is found to be very large. The yield of energy from this amount of milk is 901,864 kilogramme - meters (6,523,182 foot pounds). This is the largest production of energy that has been attained by any food-stuff thus far considered. To accomplish this result, however, a large quantity of oxygen has been used.

Compared with the meat diet composed of an equal quantity of proteid and fat, which has yielded the largest amount of energy in proportion to the quantity of oxygen used, it is found that 6,807 more oxygen units are required to secure this larger yield of heat and mechanical energy from the milk diet.

If the system can easily supply this extra quantity of oxygen, the explanation for the great value of the milk diet is clearly elucidated.

As there is comparatively little saccharine element in the milk to be transformed, little or no energy has to be expended by the glandular system in producing ferment-bodies for the transmutation of this compound into an absorbable condition. The fat also requires a comparatively small outlay of ferments of an active and special kind for its emulsification. So that all the real work that has to be accomplished by the ferment bodies is in converting the casein and other proteid substances into diffusible peptones.

RELATIVE DIGESTIBILITY OF HUMAN AND COWS' MILK.

A few words regarding the digestibility of milk may not be amiss at this point.

It is commonly thought that cows' milk is much more difficult to digest because the casein is coagulated by the fluids of the stomach in much coarser and more dense flakes, than occurs when the infant is feeding upon its mother's milk.

The fact that the mother's milk is taken directly from the breast while of the natural body temperature, is unquestionably an important factor in rendering the human milk more digestible than that obtained from the cow.

COWS' MILK AT ITS SOURCE.

If cows' milk could be taken directly from the udder of the animal, its digestibility probably would not be so much inferior to that of human milk. Practically it has often been found, that in cases where the milk seemed to disagree with an individual, if he were taken to the country or to the dairy, where the milk could be drunk fresh and before the natural warmth had been dispersed, no difficulty was experienced in using cows' milk.

COWS' MILK ON THE MARKET.

These practical conditions, however, need our attention because we have to deal with the product as it reaches the market and can generally be obtained by the masses.

In large cities it is absolutely out of the question to procure for any general use fresh and naturally warm milk. Even in the country it is not always practicable, but it might be, and is accomplished in some instances, with decided benefit.

We must therefore deal more especially with the commercial product as it generally reaches the community at large.

CHEMICAL MODIFICATIONS IN MILK.

Milk, as all know, is composed principally of organic substances together with a small percentage of mineral matter and a large volume of water.

It must be readily apparent to every one familiar with the unstable nature of organic

compounds in general, that cows' milk when it reaches the consumer, is, in its intrinsic chemical composition, an entirely different compound from that which is freshly drawn from the animal. This statement is made with reference to milk which has been wholly free from any extraneous additions which are known to be made at times, by the various dealers through whose hands it may pass on its journey to the consumer.

In fact the dairy-men and milk-dealers have long since learned that if the freshly drawn milk is somewhat rapidly chilled, changes are wrought in the composition of the milk which tend to prevent the separation of the cream. It also brings about other transformations, which make it possible to transport this unstable product considerable distances, without fermentative changes being developed.

In some instances, antiseptic agents are also added, to further aid in the prolonged preservation of this fluid.

The constant agitation which the milk, of necessity, must undergo during transportation, also has a tendency to still further alter the chemical condition of the fluid.

IMPURITIES.

To all this must be added the many contaminations which must of necessity enter the milk as commonly sold from the open can containing several gallons.

If we carefully consider all these conditions, it must be apparent that no just comparison of the higher possibilities of digestibility, between the human milk from the breast and ordinary commercial cows' milk, can be attempted.

The practical comparison however must be made, because these are the conditions which confront us.

It is clear that these difficulties cannot be entirely obviated. Much, however, can be done in the line of preventing both intentional and accidental contamination. By rigid laws and systems of scientific inspection the former can be reduced to a minimum, if not entirely abated.

Besides the unavoidable introduction of germs, etc., resulting from the common meth-

od of delivery, several of the infectious diseases can be conveyed into the system by milk. Most noticeable and most common of all is typhoid fever, to which might be added cholera, tuberculosis, and possibly a few others.

PRECAUTIONARY MEASURES.

To obviate all possibility of infecting the system by this class of poisons, all milk should be sterilized before using. This is best accomplished in a Soxhlet or an Arnold sterilizing apparatus, both of which are comparatively cheap and within the reach of all.

In opposition to the advocacy of all this care and precaution it may be argued, and perhaps truly, that the great mass of people take the milk daily, just as it may happen to be delivered to them, and that the vast majority of people suffer little or no inconvenience from using this uncared-for product. Yet we do know that many epidemics and deaths are directly traceable to this source of contamination. Therefore, if we wish to prevent every possible attack of disease, this line of procedure should always be followed.

Next in safety to sterilization of milk is the use of milk which is bottled at the farm and sent directly and unopened to the consumer. This, again, does not obviate a possible source of contamination at the seat of origin.

It now becomes perfectly clear that there are very good reasons for the cows' milk being of necessity less digestible than human milk. The question naturally raised is, can the cows' milk be made more digestible, and if so how? The presumption is that nothing will make this changed milk per se more digestible. We have no means at hand by which we can reconvert it back to its original state. It can of course be predigested by the peptic or tryptic ferments of artificial manufacture. This method of treating milk unless very carefully supervised is apt to render the fluid very unpalatable and, therefore, for general use, this is impracticable in cases of sickness or with a weak stomach, it may be absolutely necessary to resort to this method of preparing the milk.

The next question raised is, how can the digestive organs be made capable of digesting this somewhat undigestible fluid?

A concise knowledge and rigid adherence to the laws of digestion will enable us to accomplish much in rendering the stomach and intestines capable of utilizing milk to the greatest advantage.

RENNIN AND HYDROCHLORIC ACID.

The first and most important thing to be remembered is that we have two substances in the stomach, which have the power to coagulate the casein. One is the natural, unorganized ferment rennin, and the other is the mineral compound hydrochloric acid.

The secretion of the ferment rennin is stimulated by the introduction of warm food-stuffs, while the other is stimulated by the introduction of cold or solid food, both of which latter conditions tend to check the flow of the milk-curdling ferment.

The function of the rennin is to precipitate the casein, somewhat slowly, in small feathery flakes, while the acid tends to rapidly precipitate the casein in large tough and heavy flakes, or even curds.

In infant life, when feeding from the breast, the milk is always supplied in the fluid form and of a uniform temperature.

Here we have nature accomplishing exactly what has been found at the end of years to be the absolute prerequisites for the most perfect digestion of this important fluid.

DRAWBACKS OF BOTTLE-FEEDING; THEIR AVOIDANCE.

It is just this point alone that makes bottle-feeding so detrimental. The child is put in its cradle or crib and allowed to feed itself to sleep, or nurse when it feels the inclination. Part of the time the milk is warm, but more often it is cold, and the production of rennin is arrested, the secretion of hydrochloric acid is augmented, digestion is more or less disturbed as a result; which tends to favor fermentation changes and digestive disturbances.

If a child is unfortunate enough to have to be fed from the bottle upon cows' milk, much

of the difficulty and digestive disturbances which often follow this plan of feeding can be obviated.

The feeding of a bottle-fed baby should be made just as much a matter of personal attention on the part of the mother or nurse, as is required of the mother when nursing the infant. The child should always be taken in the lap of mother or nurse and, with the milk well warmed, the nursing should be attended to the same as if the child were feeding from the breast. Strict adherence to this method of feeding will prevent the child ever getting any cold milk into the stomach, also the possibility of the infant sucking its stomach full of air instead of milk.

CANE-SUGAR TO BE FOREGONE.

The addition of cane-sugar to make the milk more palatable is also a dangerous practice, which, added to the other conditions, renders it almost impossible to prevent attacks of indigestion. Cane-sugar cannot be absorbed, but must first be converted into a diffusible glucose, whereby is necessitated the development of ferment bodies and the expenditure of oxygen, heat, and energy; all of which the child cannot afford to expend. In fact the aërating space in the child's lungs is proportionately very small, consequently every effort should be made to conserve the oxygen supply.

Another important fact to be remembered is, that the power on the part of the animal economy, to produce ferment bodies for the transmutation of starch and sugar into diffusible glucose compounds, is not fully established until the first year of extra-uterine life has been passed. This fact points strongly against the use of all starchy and saccharine compounds; and largely explains the unsatisfactory results of all forms of manufactured substitutes for milk that contain sugar and starch.

The yield of heat and energy to the system from cane-sugar is very small; so that by its use nothing can be gained.

Therefore, every scientific reason conceivable points against the addition of sugar or

starch of any kind to an artificial food for infant use.

While a large number of children survive under all these adverse circumstances, the large infant mortality from digestive disturbances alone, is a constant menace to scientific medicine.

As the importance of the subject is undoubtedly appreciated by all, and as it is one which, to be thoroughly satisfactory, must be entered-into somewhat in detail, the practical importance of thoroughly understanding the digestive possibilities of milk in the adult, both in health and disease, will next be considered.

PROFESSIONAL VIEWS

ON MATTERS OF PRACTICE.

THE ANTÆTIOLOGICAL TREATMENT OF ACUTE FEBRILE AFFECTIONS.

{ Via Della Cupa (alla Riviera),
NAPLES, March 18, 1892.

TO THE EDITOR OF MERCK'S BULLETIN:

I do not pretend herein to announce to the readers of your journal an actual "new discovery," but merely a practical application, deduced from the most recent progresses in science.

1.—For a number of years we have possessed, thanks to laboratory research, the precious knowledge that the organism regularly produces, in all conditions of health, toxic principles which must necessarily be eliminated, and for which one of the ways of elimination is by the vast cutaneous system.

2.—On the other hand, the pathogenesis of acute febrile affections is still obscure, in spite of the valuable light thrown upon this subject of late by the auxiliary sciences—particularly by chemistry and bacteriology. In this state of things, and until contrary proofs are adduced, I believe myself in the right in maintaining the opinion I expressed at the THIRD MEDICAL CONGRESS at Rome, which is, that in many cases, at least, the pathogenic development takes the following course:—Under the influence of an external cause (chill) or of unhygienic conditions, a perturbation of the excretory functions of the skin takes place; which necessarily results in the retention of the above-mentioned toxins ("perspirabile retentum" of the ancients); and the consequence is an abnormal composition of the

blood and interstitial fluids (dyscrasia). Thenceforth we have the soil favorable to the growth of the pathogenic germs, and they proceed to develop in it. On the different nature of the germs depends the different *nature* of the diseases that are going to arise (acute articular rheumatism, pneumonia, tetanus, and the like); whilst the *seat* of a certain morbid process (inflammation, for instance) depends on bio-chemical conditions, that is, on undefinable nutritive phases of the tissues. Thus, under the same rheumatismal influences, different subjects become seized with inflammation of different *organs* (bronchitis, pleurisy, nephritis, etc.). Or, the same patient may be attacked in this or that organ, or be exempted, at one time; while on another occasion he may be attacked in a different organ—although the underlying trouble is always a perturbation of the cutaneous functions from external causes.

3.—Along with this, I ought to mention that, even from the epoch of strictly empiric medicine, the utility of stimulating perspiration in diseases caused by chill has been recognized, and that recently a number of noted authorities have made important researches to demonstrate that even infectious diseases, properly speaking, are benefited by this practice, and that they have already obtained satisfactory results. (See: WINTERNITZ, in "Die Hydrotherapie auf physiologischer und klinischer Grundlage"; and QUEIROLO in the Transactions of the above-mentioned CONGRESS, pp. 230-235.)

In view of this array of clinical and experimental facts, I have arrived at the conviction that, if a prompt and energetic action of the skin be realized in the initial period of sundry acute affections, before irreparable changes in the organs have been produced, we might succeed in preventing changes, and thereby ward off the lethal termination of the disease, yea, even shorten its course.

To put this conception into operation, I had to ask myself, what means are there by which to obtain with certainty a prompt and sufficiently copious sudation? Well, as is known, we cannot depend, for this purpose, on the old-fashioned diaphoretics, which have not stood the test of experience; so that we have now only Pilocarpine and the Sweating-bath. But the former, although it renders good service in chronic affections in spite of its drawbacks, is not a remedy that can be employed in acute febrile affections. Its effects are produced with certainty only when it is administered by subcutaneous injection; which method, however, is far from being usually acceptable and tolerated—particularly in delicate subjects (women, children, etc.). There remains, therefore, only the sweating-bath, wet or dry—little matter which. But how should we realize the sweating-bath in an easy and prompt manner,—whether it be in the hospital or in private dwellings,—without transporting or in any way disturbing the patients, who are always very susceptible, perhaps even affected with articular pains? This is the question which I have had under consideration for five years, and which I believe at length to have solved in a satisfactory manner.

For this purpose I have designed and constructed an apparatus which, when inclosed in a case provided with a handle, a boy can easily carry. The patient remains in his accustomed bed, and the apparatus is applied for a longer or shorter period, according to the age of the individual; at the end of 10–15–20 minutes sweat appears, increases more and more, and finally flows freely.

Having at my disposition this means of provoking perspiration, I proceeded to substantiate on a large scale the curative plan based at first only on general principles derived from experimental physiology and clinical observation.

Indeed, I possess already a number of detailed records,—the greater part of them known to my colleagues of this town,—among others, some cases of influenza that had resisted other curative methods and had become menacing.

But I should rather reserve the clinical part of this communication for another article, because I intend to present a summary as complete as possible of my experiments on the different kinds of acute diseases. With regard to one (pneumonia), I have not as yet applied the treatment in question, on account of the inveterate prejudices here in vogue. However, I feel justified, it seems to me, in concluding, for the present, that my expectations relating to the efficacy of the treatment by the dry sweating-bath in the outset of acute febrile diseases, have been fully confirmed.

I remain, dear sir,

Faithfully yours,

DOMENICO FRANCO. (*)

HYOSCINE AS A HYPNOTIC AND ANAPHRODISIAC.

} 908 McPherson Square,
} WASHINGTON, D. C., April 4th, 1892.

TO THE EDITOR OF MERCK'S BULLETIN:

In my somewhat limited experience with this alkaloid, at ST. JOSEPH'S HOSPITAL of Philadelphia, and in private practice, I found it, as stated in your January number (†), a decided mental alterative. It also proved itself a pronounced hypnotic, as well as a useful and reliable remedy in all cases of *sexual excitement*, such as nymphomania, spermatorrhœa, and allied affections. I think the happy effect brought about by this drug in the latter diseases

* Professor of Special Pathology and Hydrotherapy, UNIVERSITY OF NAPLES; Editor of *La Medicina Preventiva*, and of *Scuola Medica Napolitana*; etc.

† MERCK'S BULLETIN, 1892; p. 33.

is due in part if not most to its action on the spinal centres, as well as the brain. Hyoscine seems to be most effective as a hypnotic when the insomnia is due to cerebral or nervous excitement, rather than pain: although I have seen one one-hundredth of a grain produce sleep in a patient suffering severe neuralgic pain; after repeated hypodermics of sulphate of morphine, one-fourth of a grain each, had failed.

In the comparatively few cases I have given Hyoscine, it has never produced symptoms out of proportion to the dose, as some have experienced. Others say they have given it without deriving any effect whatever; I think this is, in a great measure, due to the purity or impurity of the article used, and not so much to the idiosyncrasy of the patient.

I purchased Hyoscine of three different dealers, and administered the same amount to the same patient, on three consecutive nights, using a different preparation each night. This man had acquired the opium habit, and could not sleep without the aid of that drug. One one-hundredth of a grain was given each night; the first night he was able to get eight hours' refreshing sleep. The second night I think he slept about one hour and a half, although he said he had not slept twenty minutes. And the third night he secured about six hours' sleep. The first preparation used was repeated for several nights with equivalent success; while the second preparation was repeated with almost the same effect as above.

The result of this one very limited experiment tends to show the varying strength, and consequently the varied therapeutical effect, of Hyoscine as it now appears in the market.

If a pure article could be obtained, or as nearly pure as it is possible to separate it from its sister alkaloid, hyoscyamine, I believe its narcotic effect could be produced with as much certainty and regularity as that of morphine or chloral; but unlike those drugs in another way, for I have never seen its administration followed by the slightest depression. The only disagreeable after-effects I have ever noticed,

were in a lady 63 years old; after taking one one-hundredth of a grain on retiring, she awoke the following morning with a slight headache and complained of a little dryness in her throat,—both disappearing within a few hours.

In ordinary cases of over-frequent seminal emissions, hyoscine has a great advantage *over the bromides*, which are so often prescribed for this disorder: the vitality of these persons is already much impaired from the continual drain upon the system; the bromides, as we know, if given for any length of time, serve to increase the depression. I can do no better than portray one or two cases in this connection.

I may add, the Hyoscine used in the following cases, and that with which I have had the most success, was made by MERCK.

Case 1.—Peter M., aged 22, has had involuntary seminal emissions for about three years; lately they have increased to one, two, and even three a night. He had to give up work and became melancholic. He was put on one one-hundredth of a grain of hyoscine nightly; in addition he was given a tonic of quinine, strychnine and iron. At the end of a week, as near as he could say, he had had but two emissions; the following week he had none; after four weeks he felt so much better he returned to work.

Case 2.—William L., 21 years of age, has had one and two seminal emissions nightly for months. He was put on the same treatment as above, with equally good results.

Very respectfully,

JOHN W. SHAW, M.D.

METABOLISM IN TUBERCULOSIS.

{ 216 West 9th Street,
WILMINGTON, Del., March 21, 1892.

TO THE EDITOR OF MERCK'S BULLETIN:

That immense strides are being made in scientific therapeutics, is witnessed by such articles as that one from the pen of Dr. WM. H. PORTER, in the January issue of your

journal, on "The Action of Mercurials and Iodides" in rheumatism and other specific diseases. (*) Dr. PORTER's theory, condensed, is: that specific diseases (gout, rheumatism, and more especially syphilis) are cured, if at all, by a tearing down and building up of tissue in all parts of the body, that is by *increased metabolism*. And that inorganic remedies are foreign bodies, and in that sense poisonous and therefore irritating to the organism, and that they thus exert their action through the *stimulation of metabolism*. It is in regard to the application of this theory to Tubercular Lesions that I wish to offer a few thoughts; and if I may be allowed I will preface them by quoting a few lines of his article.

Thus: "In tubercular lesions the same law "proves true; but the nutritive vitality is at "such a low ebb that to add any more irritation to the system means almost certain "death." (Page 15.)

Here we have the whole thing in a nut shell. The successful treatment of tubercular disease in all of its various attitudes and ramifications is by producing such an upheaval in the physical organism, such a tearing-down and building-up of the body as shall remove, as much as possible (for it is never possible to remove it entirely, any more than in syphilis), the adventitious substance which constitutes tubercle and its material result.

The only mineral that we are acquainted with, by which it is claimed that safe stimulation of the nutritive processes may be attained, is some form of *hypophosphite*; and here it is not the base, but a form of oxidizable phosphorus, that is supposed to attain the object.

The object of this letter is, however, to insist that more marvelous results than are claimed for any system of medication can be attained by a scientific and carefully regulated system of *hygiene*; which must be varied to fit each case; which should be individually studied, but which in many general features may be adapted to all cases. How perfectly idle to fill a patient with drugs the effect of

which is doubtful, and leave him subject to the same environment as *that in which* he originally contracted the disease! It shows the folly and superficial credulity of the age.

We have in oxygen a sufficient stimulant to the nutritive processes, if it is intelligently used. Combine this with *progressive* regulation of the dietary, exercise, living and sleeping environments; and you have powerful motives to continuance of life.

By "progressive," I mean: adapted to the gradual increase in strength and health. The great desideratum, then, is to flood the organism with oxygen, and at the same time mildly stimulate the excretory organs to constantly remove and thoroughly carry off the waste product.

In my opinion, one of the most advantageous means of administering oxygen is by means of *the bicycle*. The bicycle will digest more fat meat and starchy vegetables than any means of exercise known.

And it has the advantage of not readily causing undue fatigue; and at the same time it induces an even balance of the mental organism. Everyone knows the disastrous effect of intensive fatigue upon the tuberculous organism.

By it the tissues, which at the best are not more than able to supply force and at the same time keep themselves cleared of the animal or vegetable poison, are laid open to a broad invasion of the morbid elements. The gates and barriers are all thrown down and the sentinels, whose warnings remain unheeded, are either shot down or laid to sleep.

Therefore, a broad rule should be laid down to all tubercular patients:—*Avoid undue fatigue!*—avoid it as you would the plague. Then, if you are able to follow a thorough hygienic rule of life, there is no need for you to die.

The latest theory in the treatment of tubercle is *rest*. I would say: *action*, with rest as the unpleasant necessary concomitant, but which latter should be gradually, steadily, and progressively abridged.

W. H. BURR.

* MERCK'S BULLETIN, 1892; pp. 3-15.

CLINICAL PAPERS

ON LIVE TOPICS.

PHYSIOLOGY AND PATHOLOGY OF THE MAMMALIAN HEART.

By Drs. C. S. ROY and J. G. ADAM.

[Read before the ROYAL SOCIETY, London.]

We have sought to study the action of the mammalian heart in conditions (unexcised and intact) as nearly approaching the normal as we were able to make compatible with the employment of exact methods of research.

On another occasion we described a cardiometer which we employed to measure the "contraction-volume" (the volume of blood expelled by the heart at each contraction), and the output (the volume of blood expelled by the heart in any given time), as well as the changes in the volume of the heart other than those due to its rhythmic contractions and expansions. A description is also given there of the method of employing it, together with a statement as to the degree of accuracy with which, according to our experience, the instrument supplies information regarding changes in the volume of the heart. We also describe an automatic "counter," which we employed for measuring out and recording the output of the heart, as obtained by the cardiometer.

Another instrument which was found of great value in our work is our "myocardiograph," which we made use of to record the contractions and expansions of any part or parts of the ventricular or auricular walls without interfering with the movements of the heart. In most cases we employed this instrument to obtain simultaneous records of the contractions of one auricle and one ventricle.

Each ventricle is sufficiently nearly spherical to permit us to deal with the mechanics of the ventricles on that basis, and, whatever the method of research employed, it is important to keep in mind the relationship of the circumferences of spheres and their cubic contents. If the circumferences of spheres be taken as the abscissæ, and the cubic contents repre-

sented as ordinates, the curve obtained is a "cubical parabola." For example, reduction by 1 inch of the circumference of a sphere of 5 inches circumference is accompanied by a reduction of the contents equal in amount to that which accompanies the lessening by $\frac{1}{4}$ inch of a sphere of 10 inches circumference, although in the one sphere the circumference is lowered $\frac{1}{5}$, and in the other $\frac{1}{40}$.

It is important, also, to keep in mind that the strain on the walls of a hollow spherical shell increases uniformly with the circumference; in other words, that the resistance to contraction of the ventricular walls becomes greater as the circumference is increased. It is well, also, to note that a change of pressure in the aorta or in the pulmonary artery has the same effect on the resistance to contraction offered to the left or right ventricular walls as an increase or decrease of a weight hung on a parallel-fibred voluntary muscle which is caused to contract by single induction shocks causing maximal contractions. If you increase the weight, it is not pulled up so high, and *vice versa*. An analogous result takes place in the case of the ventricles. When, from any cause, the resistance to contraction is increased, or their force of contraction, from any cause, is reduced, their walls contract less completely, and the amount of "residual" blood left in their cavities at the end of systole is increased.

We now come to the effects of the vagus nerve upon the heart. Beginning with the changes in the contraction-volume, we find that, at first sight, our curves seem to show that, other things being equal, the volume of blood expelled at each systole varies in inverse ratio to the rapidity of the heart-beat. However, this general law does not hold good for vagus-slowness (if, indeed, it be exact for slowing of any kind), which is found to be accompanied by a lowering of the output, and that, with

moderate slowing, this diminution of the output may be as much as 30 or 35 per cent.

The increase in the amount of residual blood in the heart, which is produced by *vagus*-excitation, does not necessarily indicate any weakening of the ventricular contractions.

Next analyzing myocardiographic records of the action of the *vagus* upon the heart, we find that the auricular contractions are weakened or arrested, and that the influence of the *vagus* upon the *force* of the auricular contractions bears no constant proportion to the *vagus* *slowing*. By fairly strong *vagus*-excitation or by muscarine, the auricles may be completely arrested, it may be, for hours. This complete arrest is, in some cases, led to by progressive weakening; but sometimes arrest occurs immediately after fairly strong beats, or with fairly strong beats presenting themselves at times during the arrest. These latter cases may be explained by weakening of the excitations which reach the auricles from the sinus, although they are possibly due to diminished excitability of the auricles.

On coming to the effect of the *vagi* upon the ventricles, we find that the distention of the heart during *vagus*-actions is due to the ventricles being more expanded, both in diastole and in systole; we also find that the increased volume of the heart at the end of systole, is a necessary result of the increase in the ventricular contents, and combat the conclusions of those who ascribe it to weakening of the ventricular contractions, pointing out that the greatly increased contraction-volume increases to a corresponding extent the work done at each contraction.

Then examining the influence of the *vagus* upon the tonus of the relaxed ventricles, we find that the great distention during *vagus*-action is due entirely to increased intraventricular pressure during diastole, and not, as has been asserted by some, to any change in the elasticity of the relaxed ventricular wall.

Next considering the cause of the rise of venous (systemic and pulmonary) pressure, we find that this is due, not to any increase in the

amount of blood entering the veins in a given time or to contraction of their walls, but that it is to be ascribed to the diminished inflow into the ventricles. The cause of this diminished inflow into the ventricles leading to corresponding diminution of the output is two-fold—namely, weakening or arrest of the auricles, and the elastic resistance of the ventricular wall to distention. This explanation applies to both sides of the heart, and observed facts correspond with it. If we then consider the after-effects of *vagus*-excitation, we find that the temporary increase in the output which is sometimes present may be explained by a temporary increase in the force of the auricular contractions, and by the venous pressure taking some little time to fall after the *vagus*-excitation has ceased.

As for the influence of the *vagus* upon the heart-rhythm, we find that, when a *vagus*-excitation reaches a certain degree (varying in different animals), the ventricles begin to beat independently of the sinus and the auricles; that this rhythm, which is at first slow and irregular, gradually becomes fairly rapid and almost completely regular. This rhythm must be looked upon as the same as that which, as WOOLDRIDGE and TIGERSTEDT observed, makes its appearance when the ventricles are severed from the auricles. However, the independent ventricular rhythm of *vagus*-action is characterized by the slowness with which it establishes itself. This characteristic is due to the *lowering of the excitability* of the ventricles produced by *vagus*-action; the *vagus* *does* lower the excitability of the ventricles, and, by means of muscarine and by discontinuous stimulation of the *vagus*, it is possible to isolate the influence of the *vagus* on the rhythm and force of the auricles from its influence upon the excitability of the ventricles. The power of the *vagus* to stop the ventricles temporarily can only be explained by this diminution of their excitability.

With a certain degree of *vagus*-excitation, *irregularity* of the ventricles necessarily results in consequence of the sinus and the idio-ven-

tricular rhythms interfering with one another; this is the common cause of irregularity, which, however, may also be caused by the auricles not responding to all the impulses which reach them from the sinus. In rare instances, direct excitation of the vagus may so lower the excitability of the ventricle that the contractions may not extend over the whole of their walls, and may in this way produce the apparent weakening which is sometimes met-with.

Passing on to study the effect of the direct excitation of the *nervi augmentores* (*accelerantes*) upon the heart, we find that the acceleration of the rhythm may be extremely slight if the heart be beating fast, and that the acceleration and augmentation of force of the heart bear no constant proportion to one another. The augmentor-nerves increase the diastolic expansion of the auricles and also increase their systolic contraction, but these two effects do not go hand-in-hand. Excitation of the augmentors increases the output of the heart, owing to the increased force and frequency of the auricular contractions, the result of this being that the pressures in the systemic and pulmonary arteries rise, while the systemic and pulmonary venous pressures fall. If there be but little quickening, the contraction-volume of the ventricles is increased.

The augmentors, on direct stimulation, cause a slight increase in the diastolic expansion of the ventricles, which is passive in nature and due to the increased force of the auricular contraction. The force of the ventricular contractions is increased; they contract more completely, diminishing the amount of the residual blood, in spite of the fact that the arterial pressure is usually somewhat raised.

There are certain nerve-fibres other than the *nervi augmentores* proper, which pass from the stellate ganglion to the heart, sometimes by the annulus of *VIEUSSENS* to the inferior cervical ganglion, but sometimes as separate branches passing directly to the heart from the ganglion stellatum or the annulus. On peripheral excitation of the cut nerves there is marked weakening of the contractions both

of the auricles and of the ventricles, usually with some degree of slowing, this being sometimes followed on cessation of the excitation by a very well-marked increase in the force and frequency of the auricular and ventricular contractions. They may be vaso-constrictors for the coronary vessels, although we can, in the meantime, give no proof of this. There are nerve-fibres which descend to the heart by the *vago-sympathetics*, which, on excitation under certain conditions, increase the force and frequency of beat of the auricles and ventricles, and which may be vaso-dilators for the coronary vessels.

Reflex excitation of the vagus produces results which are the same as those, above described, of direct excitation of the nerve, the curves being, however, more typical and satisfactory than those obtained on peripheral excitation of the nerves.

Excitation of a mixed nerve like the sciatic usually produces effects on the heart similar in kind to those caused by direct excitation of the augmentors, but the phenomena are complicated by the greater rise of the pressure in the systemic arteries. Sometimes the increase in force of the left ventricle more than counterbalances this increased resistance to contraction, and the amount of residual blood in the left ventricle is reduced; in other cases the increase in force of the ventricular contractions is not sufficient to counterbalance the increased resistance, and the residual blood in the left ventricle is increased.

Excitation of the central end of a mixed nerve, like the sciatic or splanchnic, often affects both the augmentor and vagus centres in the medulla, and that, in nearly all such cases, the augmentor-centre is the more strongly excited of the two, so that augmentor-effects show themselves during the excitation, but are succeeded by vagus-action on ceasing to excite the nerve. In many cases augmentor-effects alone show themselves. When excited reflexly the augmentor-centre begins and ceases to act earlier than the vagus; the opposite, therefore, to what takes

place with direct excitation. In rare cases the excitation of the vagus-centre may be stronger than that of the augmentor from the first. Although in the absence of any augmentor-action the vagus does not reduce the force of the ventricular systole, it does unmistakably have the power of *inhibiting* the strengthening influence which the augmentors exert upon the ventricular contractions.

On examination of the part played by the vagus in the economy, we find that vagus-excitation relieves the heart of work and therefore of tissue-waste to as great an extent as is compatible with a continuation of the circulation, and conclude that the vagus acts as a protective nerve to the heart, reducing the work thrown upon that organ when, from fatigue or other cause, such relief is required by it. The presence of fibres in the sciatic and other mixed nerves which can cause reflex excitation of the vagus, would seem to indicate that this nerve may be used by other parts of the body to diminish the output of the heart and lower the blood-pressure, thereby reducing the activity of the circulation as a whole. The influence of the blood-pressure in the systemic arteries on the degree of vagus-activity and the readiness with which the vagus-centre is called into play on raising the intracranial pressure, indicate that the vagus-mechanism is specially employed in lowering the circulation so as to limit cerebral congestion. The vagus acts chiefly in the interests of the heart and central nervous system.

The power of the vagus over the heart is limited, and the idio-ventricular mechanism, which comes into play when the vagus-action exceeds a certain limit, must be looked upon as the means by which arrest of the circulation and death is prevented, whenever from any cause the nerve exerts a maximum influence. The power of the vagus to lower the excitability of the ventricles, makes their temporary arrest possible; but this reduction of the excitability of the ventricles cannot be kept up, no matter how strong the stimuli

applied to the nerve, for a period long enough to endanger the economy.

The function of the augmentor-nerves in the economy is to increase the work and tissue waste of the heart, as part of the mechanism by which the nervous system governs the circulation, and the augmentor-mechanism sacrifices the heart, so to speak, in order to increase the output of the organ and enable the ventricles to pump out their contents against a heightened arterial pressure. Such excessive action of the heart is limited by the vagus, which, as we have seen, readily steps in so soon as the call for an increased supply has ceased. It may do so earlier, presumably because the increased blood-pressure or the fatigue of the heart calls for vagus-intervention.

As for the mode of interaction of the vagi and augmentores, when the vagi are paralyzed by section or by atropine, the augmentores seem to have no control over the cardiac rhythm, and, therefore, they can only act by inhibiting the influence of the vagi on the rhythmic centre of the heart. When neither nerve is acting on the auricles, these latter contract with a certain force, which is increased by the augmentores and diminished or inhibited by the vagi. The force of the ventricular contractions is increased by augmentor-action; this increase can be inhibited by vagus-excitation, which latter has otherwise no power to reduce the strength of ventricular contractions.

The force of the heart's contractions is influenced by other factors than the vagi, augmentores, and other nerves. The pressure of the blood in the coronary arteries is one of the most important of these factors. If this be lowered the contractions of both auricles and ventricles diminish in strength, while a rise of pressure in the systemic arteries causes an increase in the force of the heart's contractions, so that the force of the heart's contractions is to a certain extent regulated automatically by changes in the blood-pressure in the aorta, which is one of the variable quantities affecting the work of the left ventricle.

Change of the volume of blood in the body affects greatly the contraction-volume and output of the heart. Injections into the veins of a volume of defibrinated blood equal to one-tenth of the total amount of blood in the body, may double the output. It is important to note here that there is no increase in the strength of the ventricular contractions; therefore, increase in the work of the ventricles due to increase in the output, has no tendency to automatically increase the force of the ventricular contractions, as is the case with rise of pressure in the systemic arteries.

Increase of the watery constituents of the blood increases the contraction-volume and output to the same extent (though only temporarily) as does transfusion of blood, but acts more unfavorably on the heart, seeing that the work done by the ventricles is increased, while the nutritive value of the blood supplied to the coronaries is diminished. The increased output of the heart both in plethora and in hydræmia is due to rise of pressure in the systemic veins increasing the volume of blood which enters the right ventricle during diastole.

As regards the limits of the power of the heart to perform the work thrown upon it, in strictly physiological conditions and in spite of the beautiful mechanism by which the force of the ventricular contraction is regulated, the cardiac mechanism, like the other mechanisms of the body, is liable to derangement, *inter alia* from fatigue when the work thrown upon it greatly exceeds that which it usually has to perform. If we take as an example the increased work thrown upon the organ during active muscular exertion, we find that exertion and endurance of fatigue are limited mainly by the limited power of the heart to continue supplying the increased amount of blood which is required by the acting voluntary muscles. Those luxuries which are forbidden or limited in "training," and which are known to hinder prolonged exertion, such as water, alcohol, tobacco, caffeine, all directly weaken the force of the heart's contractions,

and, in the case of water, place the organ under further disadvantages; fatigue of the heart leads to dilatation of the organ.

On comparing the power of fatigued ventricles to carry on increased work as compared with well-nourished, unfatigued ventricles, it is found that not only is the strengthening effect of the augmentor-nerves upon the individual contractions less in the former case, but also that the fatigued and therefore dilated heart is *per se* unfavorably placed for meeting increase in the work thrown upon it.

Irregularity of the heart in disease may be explained by the mode in which the vagus, when acting powerfully, releases the ventricles from the control of the rhythmic centre in the sinus. The chief forms of rhythmic and arrhythmic irregularity correspond with the forms of irregularity which can be produced by vagus-action. The irregular heart expends more energy, and its tissues, therefore, are more wasted, for a given amount of work, than the heart which is beating regularly.

The effect upon the heart of imperfect aeration of the blood is, first of all, to produce powerful vagus-action from the medullary vagus-centre; this is usually, though not always, accompanied, in curarized animals, by diminution of the output of the heart. But we may with reason assume that the output would be increased in uncurarized animals, owing to the high venous pressure which results from struggling. Besides the vagus-action, it can be shown that asphyxia causes progressive weakening both of the auricles and of the ventricles, and it is a fact that the considerable rise of pressure in the systemic arteries in asphyxia is accompanied by vagus-effects upon the heart and not by augmentor-action, as is the case, so far as we know, in all other instances in which the vaso-constrictor centre is excited in the normal individual. •

Finally, the changes in the heart and circulation which take place during asphyxia point to the conclusion that, when the total amount of oxygen in the blood is lowered, it is for the benefit of the economy that those organs, such

as the central nervous system, whose continuous blood-supply is a vital necessity, should be richly furnished with blood by constriction of the vessels of the spleen, kidney, and digestive system, whose blood-supply can be cut off temporarily without danger to life, and also

that the heart should carry on the circulation in a manner involving as little as possible waste of its own substance. This latter physiological condition, as we have seen, it is the function of the pneumo-gastric nerve to bring about.

NEW REMEDIES,

AND NEW LIGHT ON OLD ONES.

APO-ATROPINE AND ITS SALTS.

APO-ATROPINE— $C_{17}H_{21}NO_2$ —is an alkaloid occurring as a by-product in the manufacture of atropine. It is a colorless, crystalline substance, little soluble in water; readily soluble in alcohol, chloroform, or benzene; melting-point, between $60-62^{\circ} C$ [$140-143.6 F$]. It has been proved to be identical with atropamine and with atropyl-tropeine.

APO-ATROPINE CHROMATE precipitates upon adding potassium bi-chromate to the aqueous solution of the hydrochlorate; it is in golden-yellow leaflets, quite difficultly soluble in water.

APO-ATROPINE HYDROBROMATE occurs in long needles united to form white, glossy leaflets; difficultly soluble in cold water; melting-point, $230^{\circ} C$ [$446 F$].

APO-ATROPINE HYDROCHLORATE can be recrystallized from its aqueous solution by means of sodium chloride; it is in white, shining, anhydrous leaflets; soluble with moderate difficulty in cold water; melting-point, between $237-239^{\circ} C$ [$458.6-462.2 F$].

APO-ATROPINE HYDROCHLORATE AND GOLD TRI-CHLORIDE occurs in long, slender, yellow needles, which are very difficultly soluble in cold water, and melt between $110-111^{\circ} C$ [$230-231.8 F$].

APO-ATROPINE HYDROCHLORATE AND MERCURY BI-CHLORIDE is in glossy leaflets, which are moderately soluble in water, sinter at about $115^{\circ} C$ [$239 F$], and gradually decompose at higher temperatures.

APO-ATROPINE HYDROCHLORATE AND PLATINUM TETRA-CHLORIDE occurs as yellowish-white, shining, anhydrous scales which are

practically insoluble in cold water, and melt, with decomposition, between $212-214^{\circ} C$ [$413.6-417.2 F$].

APO-ATROPINE HYDROCHLORATE AND TIN CHLORIDE is precipitated by the addition of tin chloride to the solution of the hydrochlorate; it occurs in white, shining leaflets, easily soluble in hot water.

APO-ATROPINE HYDRO-IODATE is precipitated from the aqueous solution of the hydrochlorate by the addition of potassium iodide, in the form of small, white needles. When recrystallized from hot water, it forms perfect crystals.

APO-ATROPINE PICRATE occurs as yellow, velvety needles, difficultly soluble in water, and melting between $166-168^{\circ} C$ [$330.8-332.6 F$].

Therapeutical data on APO-ATROPINE and its salts have not as yet been reported.

E. MERCK.

CALOMEL IN HEMORRHOIDS.

For a number of years Dr. J. B. JAMES, of London, has treated hemorrhoids by the simple process of applying CALOMEL to them with the finger, and claims to have done so with marked success in every case, particularly when the hemorrhoidal mass was inflamed,—which is characterized by mucous discharge and hemorrhage, accompanied with a painful sensation of weight in the region of the rectum. All these symptoms—it is alleged—were speedily relieved by the simple application of the CALOMEL, which had the still more important subsequent advantage of restoring the patient to perfect ease—enabling him to pursue his usual occupations in happy immunity from all distressing or annoying symptoms.

BISMUTH SUB-GALLATE INTERNALLY, IN DIARRHEA.

Drs. COLOSANTI AND DUTTO report (*La Rif. Med.*) on the internal use of BISMUTH SUB-GALLATE—previously described in this journal—in a vast number of cases of diarrhea (due to phthisis, typhoid fever, ulcerative colitis, etc.). The medicament was administered in wafers, or in mucilaginous emulsions, in daily doses of 2–6 grammes [30–90 grains]—according to the severity of the case; occasionally it was combined with powdered opium.

The effect of this medication was satisfactory, and no toxic symptoms were ever observed. The urine remained normal, but the stools were colored intensely black in nearly all the cases—owing to the formation of bismuth sulphide.

—Dr. COLOSANTI (*ibid.*) has made a series of bacteriological experiments with a view to determine the relative microbicide power of BISMUTH SUB-GALLATE, Iodoform, and Aristol, on *staphylococcus pyogenes*, *staphylococcus pyogenes albus*, *bacillus pyocyaneus*, and the typhoid bacillus. Cultures of these microorganisms in broth, mixed with iodoform and aristol, were still alive and grew luxuriously after eight or nine days; while similar cultures to which BISMUTH SUB-GALLATE had been added, seemed to have lost their power of multiplying on the fourth or fifth day.

BRAIN-SUBSTANCE IN NEURASTHENIA.

At a recent meeting of the ACADÉMIE DE MÉDECINE, at Paris, Dr. CONSTANTIN PAUL related his observations (*Sem. Méd.*) on eleven cases which he had treated by means of injections of brain-substance into the subcutaneous cellular tissue. Three of the patients suffered from chlorotic neurasthenia, three from classic neurasthenia, one from permanently slow pulse, and four from locomotor ataxia. The liquid used was a 10% solution of the gray substance of the brain of the sheep, sterilized by carbonic acid in Arsonval's apparatus; the injections were made into the lumbar or gluteal region

—the dose being 5 cubic centimetres [80 minims] at most.

This treatment is reported to have been well borne—as a rule producing no reaction, either local or general. In the two-hundred-odd injections made in the eleven patients, abscess or acneic pustules resulted in no instance; occasionally, however, slight lymphatic engorgement was observed, which disappeared in three or four or—at the most—seven days. The first effect noticed by the patient was a sensation of increased strength and comfort—the previous muscular weakness diminishing rapidly. The vertebral pains and spinal hyperæsthesia disappeared after a few injections; the lightning pains of the tabetic subjects, the neurasthenic headaches, the insomnia, and the cerebral impotence all vanished in their turn. The appetite returned, and those patients who were previously dyspeptic now assimilated their food so well, that they began to increase in weight. In the tabetics sexual power returned with the general improvement. The author therefore considers the injections of gray brain-substance a nerve tonic of no mean value.

Dr. PAUL compares a neurasthenic patient with an accumulator which it is impossible to charge: while the morbid condition lasts he is unable to transform his food into force; after the least effort his muscular and intellectual forces are exhausted. But—it is maintained—the injection of cerebral matter in the manner described promotes the utilization of food and its due assimilation; so that the nervous system now becomes a chargeable condenser by means of which the subject acquires force which he can dispose-of at will. It should be noted that it is the nervous force which first returns in all these cases; subsequent to and consequent upon this, the power to do intellectual and muscular labor comes back—the improvement in the condition of the blood following later-on.

In conclusion the doctor claims that the subcutaneous injection of brain-substance alleviates and cures neurasthenia much more

rapidly than the ordinary therapeutic measures—iron, arsenic, phosphates, opium, alcohol, etc.; and its action is more prompt and certain than that of hygiene alone, or that of suggestion, ovariectomy, or even electricity.

CARPAINE.

CARPAINE— $C_{11}H_{27}NO_2$,—discovered by M. GRESHOFF in the leaves of *Carica Papaya* (Melon-tree), occurs as beautiful crystals of a very bitter taste, melts at $115^{\circ} C$ [$279^{\circ} F$], and forms with acids crystalline salts of which the *hydrochlorate*—which is freely soluble in water—is the most important.

GRESHOFF having reported that CARPAINE acts as a heart-poison, Dr. FELIX Baron von OEFELE tested it therapeutically, and found that it produces neither irritation nor abscess when injected subcutaneously; furthermore, he regards it as the *only* substitute for digitalis which can be used hypodermically without occasioning the disturbances mentioned. Internally (in daily doses of 0.025 gramme [$\frac{3}{8}$ -grain]) it is reported to possess no advantages over the other digitalis substitutes; but its *subcutaneous* employment in doses of 0.006–0.01 [$\frac{1}{10}$ – $\frac{1}{8}$ grain], daily, or every other day, is warmly recommended—the action of the medicament, when so used, being noticeable a few minutes after the injection. In insufficiency and aortic stenosis the CARPAINE treatment effected reduction in the frequency of the pulse, alleviation of the respiratory difficulty, and considerable increase in diuresis (to double the quantity).

E. MERCK.

CHLOROFORM IN TYPHOID FEVER.

Dr. P. WERNER, physician to the GERMAN HOSPITAL at St. Petersburg, has treated with the greatest success 130 cases of typhoid fever by using a 1% solution of CHLOROFORM (*La Sem. Méd.*). In pursuing this form of treatment the author was prompted by the work of BEHRING on the microbicide action of CHLOROFORM upon the bacillus of typhoid fever; but he was not familiar with the observations of

Dr. STEPP, of Nuremberg, who in 1890, successfully administered CHLOROFORM in cases of typhoid fever.

Dr. WERNER employed, as has already been said, a 1% solution of CHLOROFORM,—the patients taking one to two tablespoonfuls every hour or two, *night and day*, without interruption, as long as the fever was at its height.

As the disease abated, the dose was progressively diminished, although even after the fever had completely disappeared, the medicine was continued for some time—several teaspoonfuls being given each day.

In all the cases where this treatment was commenced before the tenth day of the disease, the most favorable results were obtained: the patients did not present the regular typhoid condition; the general symptoms were limited to fever, with feebleness and want of appetite; the tongue never got into that coated, dirty, and loathsome condition so characteristic of typhoid fever; the thirst, habitually so intense, disappeared in about two days; and the diarrhoea and meteorism progressively diminished and soon disappeared altogether. Bed-sores were never observed; and relapses were very rare.

When the treatment with CHLOROFORM was commenced late, the disease being already in the third week, such extremely favorable results were not attained; but even in such cases, the treatment proved very useful, and was always well borne. Nevertheless, in four cases Dr. WERNER observed a jaundice, which in one instance was sufficiently pronounced to advise a suspension of the medicine. Three of these cases were in children; the fourth occurred in a young man.

It might be remarked in conclusion, that the observations of Dr. WERNER agree in every respect with those of Dr. STEPP. The treatment of typhoid fever by CHLOROFORM appears to be deserving of the attention of the practitioner,—not only on account of its efficacy, which has been proven by two investigators independent of each other, but also because of its great simplicity.

CONDURANGO AND NUX VOMICA—EFFECT ON THE GASTRIC SECRETION.

Dr. WAGNER reports (*Arch. Gén. de Méd.*) the results of his investigations on the effect of these two drugs upon the gastric juice. The observations were made on twelve patients, nine of whom were hypopeptic and three hyperpeptic (according to HAYEM and WINTER, patients are said to be hypopeptic when the elements of the gastric juice are below the normal standard, and hyperpeptic when those elements are above the normal standard). No treatment was adopted until the average composition of the gastric secretion had been ascertained. Then the action of the drugs was determined by administering them once only with EWALD's test meal, and also regularly for four, seven, or ten days—the contents of the stomach being withdrawn one hour after the meals by means of a soft tube, filtered, and divided into two parts, one of which was examined by WINTER's method, while the other was tested for free hydrochloric acid, lactic acid, and peptones.

As regards CONDURANGO, the author concludes that it assists digestion to some extent, but that it is not able to produce any *lasting* change in the gastric secretion. As for NUX VOMICA, the alcoholic tincture was found to act favorably in *hypopepsia* both in respect to the quantity and quality of the digestive fluid; but in *apepsia* it is reported to be without effect, and in *hyperpepsia* contra-indicated. According to Dr. W., therefore, the action of NUX VOMICA as a digestive is superior to that of CONDURANGO—the effect of the former being quite permanent, while that of the latter is fleeting.

OXALIC ACID, in half-grain doses every 4 hours, dissolved in water, has been recommended in all forms of *amenorrhœa*.

HERACLEUM LANATUM (Cow Parsnip) has given good results in two cases of *epilepsy* observed by Dr. H. N. AVERY. An alcoholic infusion of the leaves was used.

CORROSIVE SUBLIMATE IN TETANUS.

Dr. CELLI reports (*Arch. Ital. di Ped.*) a severe case of traumatic tetanus, in a child, successfully treated by means of subcutaneous injections of CORROSIVE SUBLIMATE. At first free incision and antiseptic dressings were tried, but in vain—the symptoms steadily growing worse. Then the hypodermic injections of CORROSIVE SUBLIMATE were resorted to—a method of treatment first practiced by BACULO. Nine injections, each containing 0.005 gramme [$\frac{1}{12}$ grain] of the medicament, were given in the course of a week; on the eighth day the patient was perfectly well. As a direct result of this medication, there were observed progressive fall in the temperature and in the frequency of the pulse, and gradual increase in the excretion of urine.

BOTANIC DRUGS AND GALENICS.*

ARARIBA ALBA, (Arariba branca—a *Rubiacæ*), BARK, is used in Brazil as a febrifuge.

ARARIBA RUBRA, (Arariba vermelha), BARK, is employed in Brazil as an antiperiodic. RIETH and WÖHLER (*Ann. der Chem. u. Pharm.*) have isolated an alkaloid (Aribine) having the formula $C_{23}H_{20}N_4$. The drug also abounds in tannin to such an extent that it has recently been recommended for the preparation of that acid.

CELASTRUS EDULIS, (Kat—a *Celastrinaceæ* indigenous to Arabia), LEAVES, are reported to possess exciting properties like those of coffee, coca, and tea, and are consequently chewed by the Arabs to avoid fatigue and create sleeplessness in marching, etc. F. A. FLÜCKINGER and GEROCK (*Fortschritt*) failed to detect caffeine in the drug; but they found 0.5% of a yellow, oily, syrupy alkaloid—Katine.

EPHREDRA ANDINA, (Pingo-Pingo—a *Gnetaceæ* indigenous to Chili), FLUID EXTRACT, has been lauded in diseases of the bladder. Dose-statements are yet wanting.

* Those of the substances here named which are *not therapeutically described*, will be so as soon as the necessary data are received.

HYMENEAE STIGONOCARPA, (Jatai-Assú—a Cesalpiniaceae), BARK, is used by the Brazilians in leucorrhœa and in hæmorrhoids, in the form of an infusion; the inspissated and saccharated decoction serves as an expectorant.

MESPILODAPHNE PRETIOSA, (Pereiora—a Lauraceae), BARK, is lauded in Brazil as an excitant. The infusion (4 grammes [1 dr.] : 80 grammes [2¾ fl. oz.] boiling water) is used in nervous depression, leucorrhœa, œdema of the lower extremities, chronic catarrhs, etc.; decoctions of the bark are employed as baths.

PEDALIUM MUREX, (Barra-Gokru—a Pedaleaceae indigenous to the East Indies), FRUIT, is employed internally in gonorrhœa and cystitis,—a decoction of 30 grammes [1 oz.] of the drug in 500 grammes [1 pint] of water being taken in the course of 24 hours.

PLUMERIA SUCUUBA, (Sucuuba—an Apocynaceae indigenous to Brazil), BARK, contains, according to Dr. PECKOLT (*Arch. Pharm.*), a crystalline, very bitter glucoside named by him "Agoniadin"— $C_{10}H_{14}O_{12}$. The latter has been successfully employed in intermittent fever, in doses of 0.12–0.25 gramme [2–4 grains]. The aqueous decoction of the bark is also reported to possess antifebrile action.

SOLANUM PTELEÆFOLIUM, (Jauna—a Solanaceae indigenous to Brazil), ROOT, is employed in the form of an alcoholic tincture, combined with iron, in intermittent fever and in renal and hepatic affections.

TOCOMA IPÉ, (Ipé tabaco—a Bignoniaceae indigenous to Brazil), WOOD, is used internally in tetter,—a cupful of a decoction of 1 part in 6 of water being taken mornings and evenings. According to Dr. PECKOLT (*Zeitschr. d. Oestr. Apoth.-Ver.*) the drug contains 2% of chrysophanic acid. E. MERCK.

CARBOLIC ACID 1 part, finely powdered Boric Acid 48 parts, mixed and sprinkled freely upon the inflamed parts, is reported to frequently afford prompt relief in *ivy-poisoning*—particularly in the acute stages of the disease, and when there is much irritation.

GYMNEMIC ACID AS AN AGEUSIC.

GYMNEMIC ACID— $C_{32}H_{55}O_{12}$ —is the active principle of the leaves of *Gymnema sylvestris* (Merasingi),—previously described in this journal. It occurs as a greenish-white powder of a harsh, sour taste; easily soluble in alcohol, only slightly so in water or ether.

If GYMNEMIC ACID be rubbed on the tongue, the sense of taste for sweet and bitter substances will be completely blunted, so that sugar or quinine cannot be detected by the taste for several hours; but the sense of taste for sour, salty, astringent, or pungent substances, is not influenced.

QUIRINI (*Gyógysz-Hetilap*) recommends a 12% solution of GYMNEMIC ACID in alcoholized water for washing out the mouth prior to taking bitter medicines.

PROXIMATE PRINCIPLES AND DERIVATIVES.*

ARECOLINE HYDROBROMATE— $C_8H_{13}NO_2 \cdot HBr$ —is a crystalline, soluble salt of the alkaloid of areca nut. According to JAHNS, betel nuts contain 0.07–0.1 per cent of Arecoline.

CAFFEINE FERRO-VALERIANATE is a reddish micro-crystalline powder; soluble in alcohol, but insoluble in water.

CAFFEINE PHOSPHATE is a white crystalline powder; easily soluble in boiling water and in alcohol.

CAFFEINE SUCCINATE occurs as a white crystalline powder; readily soluble in alcohol and in water.

CANADINE— $C_{21}H_{21}NO_4$ —is an alkaloid contained in the root of *Hydrastis canadensis* beside berberine and hydrastine. It occurs as fine, white, glossy needles, melting at 134° C [273.2 F]; chemically it may be regarded as di-hydro-methyl-berberine. It has not as yet been tested pharmacologically.

COCAINE NITRATE— $C_{17}H_{21}NO_4 \cdot NO_3H$ —occurs in the form of large, colorless crystals, and is easily soluble in water. It is recommended by Dr. LAVAUX (*Journ. de Pharm. et. de Chim.*)

* See foot-note on page 280.

in the place of cocaine hydrochlorate in all genito-urinary diseases where the use of silver nitrate is indicated: for strong solutions of silver nitrate can be injected without occasioning any pain, if an equal quantity of Cocaine Nitrate be added to them.

CORYDALINE HYDROCHLORATE — $C_{18}H_{19}NO_4 \cdot HCl + 5H_2O$ —is a salt of the alkaloid obtained from the rhizomes of *Bulbocarpus cavus*. It is in colorless crystals; easily soluble in water.

CYTISINE HYDROCHLORATE — $C_{11}H_{14}N_2O \cdot HCl$ —occurs as colorless crystals; readily soluble in water.

DIGITONIN— $C_{27}H_{44}O_{13} + H_2O$ —is contained in German Digitalin, and forms, when pure, colorless crystals; soluble in alcohol, difficultly so in water. According to Prof. BÖHM, crystallized Digitonin is entirely void of the action on the heart peculiar to digitalin.

DUBOISINE HYDROBROMATE occurs in yellowish-white, amorphous lumps, which are very hygroscopic and easily soluble in water.

EUXANTHON — $C_{13}H_8O_4$ —is in yellow needles, which are easily soluble in hot alcohol, and melt at $232^\circ C$ [$454^\circ F$].

GUARANINE TRI-iodide occurs as greenish-black crystals of a metallic lustre; easily soluble in alcohol. When shaken with water it gives up iodine to that solvent.

MORPHINE STEARATE is a white powder; soluble in alcohol, but insoluble in water. It contains 25% of morphine.

NARCEINE SALICYLATE occurs as a yellowish-white powder; easily decomposed.

PROTO-COTOIN— $C_{16}H_{14}O_6$ —is contained in the Hydro-cotoin of commerce. CIAMICIAN and SILBER prepared it from the by-products obtained in working para-coto bark at MERCK'S laboratories. It occurs as slightly yellow monoclinic crystals; insoluble in water, easily soluble in alcohol, ether, etc.; melting-point, between 141 – $142^\circ C$ [285.8 – $287.6^\circ F$].

QUININE FERRO-HYDROCYANATE occurs as small, lemon-yellow crystals; very difficultly soluble in water.

QUININE FERRO-HYDROCYANATE is a greenish-white micro-crystalline powder; soluble in alcohol, but insoluble in water.

QUININE AND IRON, PEPTONATE, occurs in blackish-brown scales; readily soluble in water.

SPARTEINE TRI-iodide — $C_{15}H_{26}N_2I_3$ —is a black powder; insoluble in water and in ether, difficultly soluble in alcohol.

THEOBROMINE AND LITHIUM, SALICYLATE, is a white powder; soluble in 5 parts of water. The experiments thus far made would seem to indicate that this double-salt is a very useful diuretic in cardiac dropsies. Disagreeable accessory symptoms were not observed. The dose is 1 gramme [15 grains] 4 times daily.

E. MERCK.

SODIUM SALICYLATE AS AN ANTIPYRETIC, TOPICALLY.

According to Dr. HALLOPEAU, SODIUM SALICYLATE is absorbed by the skin, and the late Dr. ROCHEFONTAINE agrees with him. After dressing an articulation with compresses saturated in a five-per-cent solution of the salicylate, and covering it with impervious plaster, the salt was found in the urine. Hence, such compresses frequently renewed, were applied to parts affected by erysipelas, while administering 4-gramme doses of the salt per orem in weak grog. The urine frequently revealed the presence of the salt, when it had not been taken internally. The temperature fell, gradually but considerably. Thus the hyperpyrexia of erysipelas can be reduced by this treatment, the same as that of typhoid fever. The author also observed that the disease was abbreviated, and sometimes even suddenly arrested.

In the stomach, SODIUM SALICYLATE is decomposed into soda and salicylic acid (CH. RICHTER); hence this acid can be used in this form for the treatment of infectious substances that may be contained in the digestive canal.

In typhoid fever, SODIUM SALICYLATE can therefore serve, as has frequently been pointed out, to reduce hyperthermia, while acting as an antiseptic likewise.

It will be remembered that VULPIAN was of the opinion that the salicylate exercises a moderating action on the functional activity of the anatomical elements. Its antipyretic effects have been compared to those of cold affusions, the inconveniences of which are well known.

SOLUTOL AND SOLVEOL.

SOLUTOL is the name given to cresylic acid (cresol) rendered soluble by means of sodium cresylate; it contains in every 100 cubic centimetres [$3\frac{3}{8}$ fl. oz.] 60.4 grammes [2 oz.] of cresylic acid,—one-fourth free, and three-fourths combined as sodium cresylate. According to Dr. HAMMER (*Arch. f. Hyg.*), SOLUTOL is a powerful and safe disinfectant and antiputrefactive, suitable for the disinfection of sputum, bed-clothes, excrements, water-closets, etc., and for the prevention of the decomposition of excrements, cadavers, etc. It is claimed that 0.5% solutions killed all the bouillon-cultures tested, within five minutes.

SOLVEOL is a neutral concentrated solution of cresylic acid made with the aid of sodium cresotate; clearly miscible with water. According to HAMMER (*Archiv für Hyg.*), 0.5% solutions of SOLVEOL have a more energetic effect on pathogenic bacteria than 2–5% solutions of carbolic acid, and its solutions are only very slightly irritating—constituting, therefore, a useful *medicinal* antiseptic.

SOLANINE IN PAINFUL GASTRIC AFFECTIONS.

Dr. DESNOS, a celebrated physician of the hospitals of Paris, communicated to the ACADEMY OF MEDICINE his observations on the use of solanine in the pains which accompany such a large number of gastric affections,—among them: painful dyspepsia, gastric dilatation with gastralgia, cancer of the stomach, chronic ulcer of the stomach, ulcerative gastritis with hæmatemesis, etc.

SOLANINE appears to him as generally assuaging the element of pain,—a matter of no little import in practice. Often, in such cases, re-

course has been had to the derivatives of opium, especially morphine.

Dr. DESNOS does not endeavor to establish as a rule that SOLANINE calms gastric pains better than morphine, but he has seen cases in which preparations of opium failed and solanine gave satisfactory results. There are, on the one hand, patients who cannot tolerate morphine, and it has, on the other hand, long been recognized that this drug should be avoided in cases predisposed to morphinomania, to whom the medicinal use of morphine is apt to act as an incentive to the adoption of hypodermic injections to excess, with all the sad consequences resulting therefrom.

It is not known whether Dr. DESNOS experienced marked disappointments in the use of SOLANINE; others have in times past noticed numbers of them. There are some animals and men upon whom solanine produces practically no effect whatever. We have observed this fact with VULPIAN, who, at one period of his experiments, reached the conclusion that solanine is the most innocuous of the principles of the solanaceæ. It is true that there is solanine *and* solanine; and, knowing this, the characteristics of the kind Dr. DESNOS employed should be determined. It probably was a good kind, in view of his saying that its high price might, for the nonce, be a slight obstacle to its use. But considering the variations in the composition of mixtures which the trade calls such or another alleged, well-defined principle of plants of this family, there is room for apprehension that the results obtained may prove at times nugatory, variable or even dangerous. It is therefore always well to be assured *what kind* of solanine is employed, and, when encountering a failure, to suspect that the drug was not pure or contained no active principle. The *posology* must also vary with the quality of the drug; and that is where we fear there will be severe difficulties in practice. Dr. DESNOS evidently dealt with an *active* solanine; for the hypodermic injections made with it proved extremely painful.

For the reason just stated, its *internal use* appeared indicated. In this, the daily dose did not exceed 15 centigrammes. Generally, 5 centigrammes in a pill were given some little time before meals. SOLANINE has also been prescribed in mucilaginous mixture, when employing it in very intense gastralgia.

Furthermore, it is well not to attach too much weight to the results of experiments on

animals. Instances are recorded of but slight toxic effects of atropine, for example, on animals of very high development, such as monkeys. Not to speak of the mollusks, which consume belladonna and mandragora without injury,—even rabbits have been known to feed on the first-named of these solanaceæ and return to it frequently, without any notable effect upon their health being observed.

PRACTICAL HINTS

ON METHODS IN THERAPY, PHARMACY, ETC.

PERICARDITIS — ETIOLOGY.

Dr. ALFREDO RUBINO, editor of the *Riforma Medica*, has presented to the UNIVERSITY OF NAPLES, as a thesis for recognition as Lecturer on Special Medical Pathology, an interesting work on the etiology and pathogenesis of pericarditis, based on a large number of experimental observations which he has recently carried out in the laboratory attached to Prof. CANTANI's clinic. The general object aimed at was (according to *The Lancet*) to ascertain whether simple injections of a suitable virus into the circulation are capable of producing pericarditis, with or without some predisposing cause—such as an injury to the pericardium; also, whether such injections into the pericardial cavity, or the application of cold or other irritants alone, are capable of setting up pericarditis.

First, a number of rabbits were subjected to injections into the venous circulation of pure non-diluted cultures of staphylococcus aureus and staphylococcus albus; but in no case was there any sign of pericarditis even as a secondary effect of violent inflammation in other organs; no multiple abscesses of the heart-muscle, described by FRAENKEL as being produced under similar circumstances, were met-with. When, however, the culture of pyogenic cocci was injected *directly* into the pericardium, pericarditis was invariably set up.

Experiments were next made on animals which had been subjected to injury of the

pericardium, inflicted by the actual cautery over a small area of the external surface laid bare for the purpose, or by puncture with a carefully sterilized needle—these injuries in themselves not being sufficient to produce pericarditis. Here the injection of pyogenic cultures into the venous circulation resulted frequently in pericarditis. Similar results were obtained when the cardiac region had been reduced to a low temperature by the prolonged application of a bag containing ice and salt. Finally, blows on the thorax were shown to be capable of acting as predisposing causes, permitting the entry of pyogenic bacilli circulating in the blood into the pericardium.

CORIANDER OIL (essential) has of late been employed as a *deodorant of iodoform*—8 drops of the oil being thoroughly incorporated with 1 dram of iodoform.

LINSEED OIL has been used as a *substitute for cod-liver oil*. It is administered in emulsion, in which form its advocates claim it is easily assimilated by the stomach, without in the least disturbing the latter organ.

STROPHANTHUS TINCTURE, combined with Saccharated Ferric Carbonate, is recommended by Dr. VÁCZI in *chlorosis*—10 drops of a mixture of equal parts of the tincture and bitter-almond water being taken three times daily.

COCAINE—ITS ANÆSTHETIC PROPERTIES.

From a series of experiments with COCAINE, Dr. A. BIGNON, of Lima, has adduced a number of interesting facts relative to the anæsthetic action of this alkaloid (*Bull. Gén. de Thér.*). He found that COCAINE loses its anæsthetic properties when in *acid* solution. They are not destroyed properly speaking; they merely become latent. In fact, to restore them, it is only necessary to neutralize the acidity of the solution. The intensity of the anæsthetic action of the COCAINE solution, it is claimed, attains its maximum when, after complete neutralization of the acidity, the alkaloid is suspended in a slightly alkaline liquid,—forming a preparation which, owing to its milky aspect, has been designated *Milk of Cocaine*.

Most of the salts of COCAINE, particularly the crystallized hydrochlorates extracted from acid liquids, retain a certain quantity of the acid. For this reason it is maintained their solutions do not possess the same anæsthetic power as those of the alkaloid itself, a part of that power remaining latent in the former case.

MILK OF COCAINE is regarded by Dr. B. as the most powerful form of COCAINE. It may be obtained by precipitating the hydrochlorate or any other salt of the alkaloid with a slight excess of sodium carbonate; sodium bi-carbonate is not considered quite so efficacious.

It is furthermore claimed that there are crystalline hydrochlorates of COCAINE which are so acid that the same anæsthetic phenomena can easily be obtained with 5 centigrammes [$\frac{3}{4}$ grains] of the neutralized salts employed in the form of COCAINE MILK, as with 10 centigrammes [$1\frac{1}{2}$ grains] of the same salt in ordinary aqueous solution. Finally, the author believes that it is largely to the difference in the degree of acidity of the solutions, as employed by different authors on this subject, that the divergence of opinion in regard to the doses necessary for cocainic anæsthesia ought to be attributed.

ALKALIS—THEIR EFFECT ON METABOLISM.

The effect of alkalis on the nature of the metabolic changes which albumen undergoes in the organism not having been satisfactorily determined, Dr. YAVEIN made an extensive series of elaborate observations on this subject,—employing for the purpose sodium citrate and carbonate in daily doses of 20 grammes [5 drams] and over.

The results showed that there was but little effect exerted both on the assimilation and on the metabolic change of albumen. However, there was a considerable increase in the neutral phosphates as compared with the acid phosphates of the urine. As a rule, the loss from the skin and lungs was diminished, and after discontinuing the alkali the quantity of urine was augmented. The bodily weight increased during the administration of the alkali, whereas it decreased afterwards,—the increase being probably due—in the author's opinion—to the diminished loss of moisture, and the decrease to the augmented excretion.

HIP DISEASE—OPERATIVE TREATMENT.

Dr. FERRIA describes a method of treating tuberculous disease of the hip which has recently been practiced by CAPONOTTO, of Turin, with good results. For the treatment of tuberculosis of this joint by injections of iodoform, the conditions are not so favorable as in disease of some other joints, particularly the knee and wrist. It is not always easy to puncture the hip, and the anatomical conditions of this joint prevent sufficient diffusion of the injected fluid. In order to afford free access of the antituberculous agent to all parts of the diseased hip, CAPONOTTO (as stated in the *Brit. Med. Journ.*) opens the joint and removes part of the head of the femur. This is done by making an incision about 3 inches in length, carried from the top of the great trochanter towards the postero-inferior spine of the ilium, and by cutting through the muscles and the capsule on to the head of the femur, about two-thirds of which he then removes with hammer and chisel, whether the bone be diseased

or healthy. Sufficient space is thus established between the opposed bones of the joint to permit of removal of diseased synovial membrane or of any sequestra or tuberculous deposits in osseous structure, and of subsequent distension of the whole of the diseased articular cavity by the injected fluid. After this cavity has been filled with freshly prepared iodoform emulsion, the soft parts are brought together by sutures, and the limb is placed in a good position, though not, unless in very exceptional cases, extended by weights.

OZENA—TREATMENT.

According to Dr. TH. FLATAU, of Berlin, the best treatment of fetid atrophic rhinitis is the following :

At first the larger crusts in the nasal cavities are removed with a large blunt probe (armed or not with a small pledget of cotton). Then the mucous membrane is sprayed for a few minutes with a 10 or 15% solution of hydrogen per-oxide, in consequence of which the smaller crusts become surrounded by a white froth which makes them apparent—thus permitting of a complete cleansing of the mucous surface. Then a 10 or 20% iodole-gauze bandage is impregnated with the following ointment :

Sozo-iodole Zinc.....	3ss-I [2-4 gm.].	
Vaselin.....	} of each, 3ss [15 gm.].	
Lanolin.....		
Liquid Paraffin.....	a sufficient quantity.	

Externally !

With this impregnated gauze the walls of the nasal cavity are lined in a manner as to leave in the centre sufficient space for the passage of air—this tamponade being repeated daily for 4-6 weeks. If possible, the tampon is retained for twenty-four hours; but if the secretion becomes very abundant, it is removed sooner.

It is claimed that this treatment dispenses with irrigating the nose, or at least, reduces the necessity of the same to a minimum.

AMMONIUM BROMIDE (20 grains), in combination with Antipyrine (8 grains), has been anew recommended in *epilepsy* by Dr. POTTS.

"GONORRHEAL CYSTITIS."

Much controversy has arisen in regard to the real existence of specific gonorrhœal cystitis. DU MESNIL holds (*Virchow's Archiv*) that there is no such thing, and states that when gonococci are present in the urine, they have, in all probability, come from *urethral* pus, and are not new products of a true specific inflammation of the vesical mucous membrane itself. In women, he says, pus might easily get into the bladder from the urethra or vagina, and maintains, on the strength of recent researches, that gonococci have no effect on the composition of the urine, and that cystitis with ammoniacal urine is not produced by these bacteria. On the contrary, it is held that the urine renders the gonococci harmless or even kills them entirely.

ALCOHOLIC CIRRHOSIS.

The curability of this disease has for a long time been denied, and many physicians deny it yet. Others have recorded cases in which ameliorations or cures were obtained, and, they (among them Dr. MILLARD) deem these facts beyond dispute. The distinguished practitioner named has had four such cases. According to him there is *but one* mode of treating these patients, viz., by the milk-diet. He commences with several drastic purges, and, together with the milk, gives diuretic potions of juniper berries. Under the influence of this treatment, the hypertrophy of the liver may subside slowly, and then there are good chances of cure, without reducing the liver quite to its normal size. Cure is as yet impossible when the cirrhosis has reached the third evolutive stage, namely that of atrophy. The other two phases are: simple hypertrophy, and hypertrophy with ascites. Accordingly, there would be no hope of recovery when the disease begins by sclerosis with atrophy, as has occurred in some cases.

PENTAL has been found to occasionally have such *untoward effects* as syncope, apnoea, and pupillary dilatation.

DYSENTERY—TREATMENT.

DRS. LARDIER and PERNET (*Sem. Méd.*) recommend the following treatment of dysentery—one which they have employed with the greatest success in the recent epidemic at Rambervillers, Vosges.

It is based on intestinal antiseptics, either by means of salol, or—better still—iodoform. The former is prescribed in the following formula:

Salol.....	gr. XLV [3.0 gm.].
Tolu Tincture.....	fl. 3 IISS [10.0 “].
Quince Syrup.....	fl. 3 VI [30.0 “].
Opium Extract....	gr. ISS [0.1 “].
Mucilage Acacia.....	fl. 3 IV [150.0 “].

Tablespoonful hourly.

This medication is reported to act in a very favorable manner on the morbid process. However, the medicament which was found to have truly remarkable effects in dysentery, is iodoform, in the daily dose of 30–40 centigrammes [$4\frac{1}{2}$ –6 grains.] The following formula is given:

Iodoform.....	gr. xv [1.0 gm.].
Powdered Opium.....	gr. IX [0.6 “].

For 20 wafers!—5 or 6 during the day, at equal intervals.

These wafers soon produced marked relief in the authors' cases.

The incessant and extremely violent tenesmal pains were calmed by boric-acid enemata; but the best means of combating them was found to be the use of suppositories of the following composition:

Cocaine Hydrochlorate.....	gr. VI [0.4 gm.].
Powdered Opium.....	gr. IX [0.6 “].
Cacao Butter.....	3 II [8.0 “].

Divide into 4 suppositories!—One morning and evening.

Under the influence of the cocaine, the griping disappeared as if by charm, the diarrhœa ceased, and the patients obtained a refreshing sleep of several hours' duration.

Besides the use of the medicaments mentioned, it is advised not to neglect washing out the intestines several times daily with some antiseptic fluid—such as a concentrated solution of boric acid, or a 1:5000 solution of corrosive sublimate.

MOUTH ANTISEPSIS.

In order to put into proper light the importance of mouth antiseptics—and of proper care in operations about the mouth, Dr. HUGO DELLEVIE (*Deut. Med.-Zeit.*) gives a review of the kinds of micro-organisms found in the oral cavity, which already exceed the astonishing number of over one hundred. He describes a streptococcus unknown before this, which he had found, bred, and carefully observed. This streptococcus is of the most virulent type, and possesses against most antiseptics a power of resistance greater than that of most of the other micro-organisms.

Pneumonia cocci have been found in large numbers in the saliva of healthy persons; they are always present in the saliva of patients suffering from pneumonia—during convalescence, and in many instances after the patient has recovered. It must be accepted that the presence of this micro-organism is harmless only as long as the lungs are in a *sound* and healthful condition; but as soon as those organs lose their power of resisting disease, the coccus commences its deadly work. It often extends to the lymphatics, and is frequently found in large numbers in the abscesses which it provokes in the vicinity of the teeth and mastoid process. This same germ has been found by some investigators in the saliva of patients suffering from cerebro-spinal meningitis; by others, in endocarditis and parotitis.

The streptococcus tetragenus of healthy saliva is often found in phthisical cavities, and in mastoid abscesses. The ubiquitous staphylococcus pyogenes aureus and the streptococcus appear in every buccal cavity, and to these the saliva owes its power of producing a pus-discharge. It is a matter of course, that without any thing being done on the part of the patient, suppurative processes can be produced in the oral cavity by these microbes. Even septicæmia, pyæmia, or metastatic abscesses can be attributed to this cause. The saliva of one infected by syphilis, can convey the disease by kissing, by wounds from a bite, or by sucking wounds (as in the ritual of cir-

cumcision). By such measures tuberculosis has often been conveyed from one to another. The register of such diseases as diphtheria, actinomycosis, apthæ and influenza which have been communicated by the fluids of the mouth, is complete. Care and cleanliness of the oral cavity should therefore be observed for prophylactic and therapeutic reasons. The author recommends solutions of corrosive sublimate (1:1500), beta-naphthol (1:100), thymol (1:100), salicylic acid (1:350), saccharin (1:250), or benzoic acid (1:100). Particular mention is made of the necessity of dentists being careful about disinfecting their instruments.

SUGGESTION IN DIABETES INSIPIDUS.

Dr. A. MATHIEU reported to the MEDICAL SOCIETY OF THE PARISIAN HOSPITALS the case of a man 30 years of age who passed 22 to 25 litres of insipid urine daily. Chloride of sodium was given him, while he was told that he was being treated with phen-acetin. He was cured at once. The disease is said to have returned when the patient was undeceived.

SYMPHYSEOTOMY DURING PARTURITION.

Dr. SPINELLI strongly favors symphyseotomy during parturition in cases of contracted pelvis, and asserts that the results of SIGAULT's operation, performed with due antiseptic precautions, have always been favorable for the mothers, and that the children are not jeopardized through the essential features of the operation itself,—the dangers incurred to them being solely due to the maneuvers needed for extraction (*Ann. de Gyn. et d'Obst.*). Twenty-four cases are described where division of the symphysis pubis was resorted to during labor. In these *all* the mothers and twenty-three of the children were saved. The child which was lost was delivered by version and was born asphyxiated; it was revived, but died twelve hours later.

The author concludes that a well-developed foetus at term can be delivered, after symphyseotomy has been performed, through a

contracted pelvis whose true conjugate diameter is only $2\frac{1}{2}$ inches,—a measurement for which at present embryotomy or Cesarean section is almost universally practiced; that the mother does not suffer any permanent damage, provided that strict antisepsis be enforced; and that the divided pubic bones unite by first intention.

SCARIFICATION OF THE OS UTERI IN CHLOROSIS.

Dr. J. CHERON recommends scarification in inveterate cases of chlorosis, drawing off 1 gramme of blood for every 1000 of body weight. It is claimed that by these slight bleedings the number of red blood-corpuscles and the amount of hemoglobin in the blood greatly and continuously increase, and that, besides, the general condition as well as the uterine congestion (so frequent in chlorotic patients) rapidly improves. If done with proper antiseptic precautions, scarification—a procedure previously recommended in chlorosis by SCHUBERT and several other observers—is not, it is further contended, accompanied by any risk.

TUBERCLE BACILLI—IMPROVED STAINING METHOD.

ARENS lauds the following method of staining tubercle bacilli as being more rapid than those at present in vogue (*Centralbl. f. Bakt. u. Paras.*):

A saturated alcoholic solution of fuchsine constitutes the *staining agent*. The *decolorizer* has the following composition:

Hydrochloric Acid.....	1 part.
Distilled Water.....	26 parts.
Alcohol (96%).....	73 “

For the *ground-stain* a weak solution of methylene blue is employed. As for the procedure itself, 3 drops of the staining agent are put into a watch-glass and 2–3 cubic centimetres [30–45 minims] of chloroform are added. The cover-glass with the sputum is then placed into this solution for 4–6 minutes, after which it is removed and allowed to dry spontaneous-

ly. The preparation is then decolorized by means of the decolorizer mentioned, washed, and stained with the ground-stain.

For staining bacteria in fatty media (milk, for instance), the following method is recommended by the same author:

A cover-glass preparation of the milk diluted with an equal quantity of water is made, and placed into a mixture of 12-15 drops of a saturated solution of methylene blue and 3-4 cubic centimetres [45-60 minims] of chloroform for 4-6 minutes, when it is removed from the fluid, allowed to dry, and washed. The bacteria stain deeply blue.

CHEMICAL INCOMPATIBLES.

Not infrequently are two medicaments chemically incompatible with each other prescribed together in one medicine or ordered to be used simultaneously; thereby yielding either products not only lacking the expected therapeutic effect but often positively *injurious* to the human economy besides, or *explosive* mixtures. It might therefore be of interest to remind the physician of some of the combinations of this class which are liable to occur by inadvertence, and whose synchronous prescription or application should therefore be studiously avoided.

ANTIPYRINE INCOMPATIBLES.

According to the *Pharm. Centralh.*, dry trituration of ANTIPYRINE with any of the following medicaments, effects a chemical change:—

BETA-NAPHTHOL forms a moist mixture; CALOMEL seems to yield a poisonous combination; CHLORAL HYDRATE yields an oily fluid; SODIUM BI-CARBONATE evolves an odor similar to that of acetic ether; and SODIUM SALICYLATE forms a mixture from which an oily fluid separates. (For list of *other* antipyrine incompatibles, see the May number of the fourth volume of this journal.)

CALOMEL INCOMPATIBLES.

PAUL ADAM (*Nouv. Rem.*) has investigated the action of CALOMEL and SODIUM CHLORIDE on each other under conditions as they exist in the body, to ascertain if they act as incom-

patibles. As is known, the alkaline chlorides with access of air and the application of warmth convert Calomel into Mercury bi-Chloride. ADAM found, however, that upon the exclusion of air, even in the presence of organic substances only an almost inappreciable conversion of Calomel into mercury bi-chloride occurs. He concludes, therefore, that salted food and Calomel may be taken together with impunity. It may, however, be proper to exercise caution if the Calomel is administered on an empty stomach, as then the conditions are more favorable to the formation of mercuric chloride.

The dusting of CALOMEL into the eye during the employment of POTASSIUM IODIDE internally, should be avoided. The iodine of the potassium iodide appears in the lachrymal fluid, and converts the Calomel into Mercurous Iodide, which irritates the conjunctiva. According to MEURER (*Med.-Chir. Rund.*), similar effects are produced by the simultaneous application to the eye of AMMONIATED MERCURY and POTASSIUM IODIDE, in ointment form.

CHLORAL HYDRATE DECOMPOSED BY BORAX IN THE PRESENCE OF HEAT.

CHLORAL HYDRATE and BORAX should be dissolved in the *cold* when prescribed in the same mixture, because, if heat be used, the Chloral is converted into Chloroform, which gradually evaporates.

COCAINE INCOMPATIBLES.

E. SCHELL reports (*Els.-Loth. Journ. de Pharm.*) that if COCAINE HYDROCHLORATE and CALOMEL are rubbed together, chemical reaction sets in.

MERCURIC OXIDE, too, if dispensed in the form of an ointment with COCAINE HYDROCHLORATE, changes, so that the ointment, instead of producing an anæsthetic effect upon the eyes, produces an exceedingly irritating one. This is due to the formation of Mercury Oxychloride, the quantity of which depends upon the amount of Cocaine used, the intimacy of its mixture with the mercuric oxide, and the age of the ointment.

A. BRUNER (*Apoth.-Ztg.*) states that when COCAINE HYDROCHLORATE is prescribed with SILVER NITRATE in the same ointment, decomposition of the alkaloidal salt ensues, with the formation of insoluble Silver Chloride and a corresponding change in the Cocaine.

CODEINE INCOMPATIBLES.

According to SCHAUBENLAUB, when CODEINE and AMMONIUM BROMIDE are triturated together, Ammonia is generated. However, this reaction occurs only with Codeine *alkaloid*—neither Codeine hydrochlorate nor morphine hydrochlorate having any chemical action on the ammonium bromide. Ammonium benzoate, chloride, and citrate, iron and ammonium citrate, oxalate, and valerianate, and uranium phosphate, produce no reaction with Codeine.

IRON AND AMMONIUM, IODIDE, and the analogous NITRATE, give the ammonia reaction with CODEINE, the latter in a weaker degree than the former.

Shortly after trituration of Codeine with AMMONIUM VALERIANATE, a distinct odor of AMYL NITRITE is evolved.

SCHAUBENLAUB further asserts that CODEINE resolves AMMONIUM BROMIDE into Ammonia and Hydro-iodic Acid, the odor of the former disguising that of the acid.

EXPLOSIVE MIXTURES.

The following mixtures should be avoided:

CHROMIC ACID with ALCOHOL or with GLYCERIN; IODINE with AMMONIA (on account of the formation of Nitrogen Iodide); PICRIC ACID in powder form with ANY OTHER SUBSTANCE; POTASSIUM CHLORATE with CATECHU, NUTGALLS, and TANNIN.

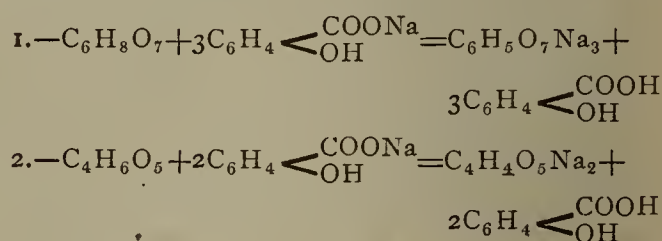
POTASSIUM IODIDE INCOMPATIBLE WITH POTASSIUM CHLORATE.

SOHET calls attention to the danger of simultaneously prescribing in one and the same mixture POTASSIUM IODIDE and POTASSIUM CHLORATE (*Bull. de la Soc. Roy. de Pharm. de Brux.*). When this mixture comes into contact with the acids of the gastric juice, iodine is liberated, which, in its turn, acts upon the Potassium Chlorate and liberates Chlorine

therefrom. SOHET also alludes to MELSEN, who long ago determined that dogs could be killed by administering a mixture of 40–60 centigrammes [6–9 grains] of both salts. The combination of the two salts mentioned can therefore not be regarded as free from danger, inasmuch as a poisonous substance results from the action of one on the other.

SODIUM SALICYLATE INCOMPATIBLE WITH SYRUPS PREPARED FROM ACID PLANT-JUICES.

Very frequently, according to BRAILLE (*Union Pharm.*), is the disagreeable taste of SODIUM SALICYLATE sought to be lessened by means of taste-correctants, such as LEMON SYRUP, CURRANT SYRUP, or RASPBERRY SYRUP. Owing to the citric or malic acid contained in these syrups, decomposition with the formation of free Salicylic Acid takes place even in the cold, according to the following equations:



As a result, the syrups become turbid, and no longer answer the desired purpose.

IODOFORM SPONGES—THEIR PREPARATION.

The following is the method of HAUG (*Nouv. Rem.*):

Small, soft, cleansed sponges are immersed for 5 days in water to which 5% of hydrochloric acid has been added; after which they are thoroughly washed in an abundance of water, and dried. They are then placed into a 7½% ethereal solution of iodoform; the ether is permitted to evaporate, which being completed, the sponges are preserved in well-stoppered bottles.

GENTIAN QUINQUEFLORA, according to Dr. J. R. GROSS of Beacon, is of value in dysmenorrhœa, menorrhagia, and menorrhagia. He gives it in doses of 4 drams every 4 hours.

GATHERED FORMULAS.

42.—Salol as an Intestinal Antiseptic.

[DUJARDIN-BEAUMETZ—*Nouv. Rem.*]

—CACHETS.—

Salol }
Bismuth Salicylate..... } of each, 4 grammes [1 dr.].
Sodium bi-Carbonate.... }

Dispense in 12 cachets.—One before breakfast and dinner.

43.—Hyperidrosis of the Feet (Treatment).

[RABOW—*Ther. Monatsk.*]

—DUSTING-POWDER.—

Salicylic Acid..... }
Powdered Talcum..... } of each, equal parts.
Rice Flour..... }

To be strewn into the stockings and shoes every morning.

44 to 46.—Cholelithiasis (Treatment).

[DUJARDIN-BEAUMETZ—*La Sem. Méd.*]

—CHOLAGOGUE PILLS.—

Euonymin..... }
Soap..... } of each, 2 grammes [$\frac{1}{2}$ dr.].

Divide into 20 pills!—One every morning and evening.

—CHOLAGOGUE MIXTURE.—

Sodium Salicylate..... 15 grammes [$\frac{1}{2}$ ounce].
Distilled Water250 “ [8 $\frac{1}{4}$ fl. oz.].

Dessertspoonful after each meal.

(As an *anodyne*, the author recommends first a trial of Olive Oil in 200-gramme [7 fl. oz.] doses,—according to the method of TONÂTRE: this, he says, will often soothe the pain. If it fail, however, hypodermic injections of Morphine and Atropine should be resorted-to, in some such formula as the following:)

—ANODYNE INJECTION.—

Morphine Hydrochlorate..... 0.06 gramme [1 gr.].
Atropine Sulphate 0.006 “ [$\frac{1}{10}$ “].
Sterilized Water.....12 grammes [3 fl. oz.].
15 minims per injection.

47.—Hæmorrhoids (Treatment).

[*La Méd. Moderne.*]

—OINTMENT.—

Atropine Sulphate..... 0.24 gramme [4 grains].
Morphine Sulphate..... 0.3 “ [5 “].
Cocaine Hydrochlorate ... 0.2 “ [3 “].

Tannic Acid..... 1.2 gramme [20 grains].
Vaselin.....30 grammes [1 ounce].
Rose Oil.....sufficient to perfume.
Externally!

48.—Anæsthetic (Local).

[DOBISCH—*Deut. Med.-Zeit.*]

—SPRAY—

Menthol..... 1 part.
Ether 15 parts.
Chloroform.....100 “

Externally!

(The author claims the anæsthesia appears very quickly, is complete, and continues for 2-6 minutes.—Recommended in cutting fistulas, and other minor operations.)

49.—Influenza—Its Abortion.

[RINGK—*Allg. Med. Central.-Ztg.*]

—MIXTURE.—

Sodium Thio-sulphate 4 grammes [1 dram].
Distilled Water100 “ [3 $\frac{3}{8}$ fl. oz.].
Currant Syrup 20 “ [$\frac{1}{2}$ “ “].
Tablespoonful every 1-3 hours.

(The use of warm Peppermint Tea is also recommended.)

50 to 52.—Anal Fistula (Medical Treatment).

—INJECTION.—

[BOINET.]

Iodine Tincture..... 25 parts.
Potassium Iodide 1 part.

or [Prof. A. VERNEUIL.] :

Ether..... 20 parts.
Iodoform 1 part.

Inject into the fistula every 3 or 4 days.

—MIXTURE.—

[Prof. F. GUYON.]

Potassium Bromide..... 30 grammes [1 ounce].
Iron and Ammonium, Citrate 1 gramme [15 grains].
Bitter Orange-peel Syrup...200 grammes [6 fl. oz.].
Tablespoonful mornings and evenings.

(It is recommended, besides, to administer tonics—Iron Iodide, Cod-liver Oil, etc.; and a mild saline purgative every other day.)

EDITOR'S NOTES.

OUR INSTITUTIONS.

THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.

This was the first of its class of institutions of learning organized.

This school and hospital was established for the purpose of giving practical post-graduate instruction to physicians, and the teaching is entirely clinical in character.

During its short existence of a little more than a decade it has already twice outgrown its accommodations.

In the year 1891, 469 physicians entered the school for study.

The school and hospital was first located in Twenty-third street, and two years later, in 1884, it moved to the building it now occupies at No. 226 East Twentieth Street. The present quarters are entirely too small, and another removal is necessary.

The directors, therefore, contemplate the building of a suitable hospital and college building in which its course of instruction can be made more practical and effectual than they have been even in the past.

The proposed buildings and ground will cost about \$300,000, and will very greatly increase the utility of the school.

NEW CHAIR AND PROFESSORS AT THE JEFFERSON MEDICAL COLLEGE.

The Board of Trustees of the JEFFERSON MEDICAL COLLEGE, at their meeting, April 7th, 1892, instituted a Chair of *Clinical Gynecology*, with a seat in the Faculty, and elected to the new Chair, Dr. E. E. MONTGOMERY, who has been, for a number of years, Professor of Gynecology in the MEDICO-CHIRURGICAL COLLEGE.

They also established the following *Clinical Professorships*, electing Dr. F. X. DERCUM, Professor of Nervous Diseases; Dr. E. E. GRAHAM, Professor of Children's Diseases; Dr. H. AUGUSTUS WILSON, Professor of Orthopedic Surgery; Dr. H. W. STELWAGON, Professor of Dermatology; and Dr. W. M. L. COPLIN, Adjunct Professor of Hygiene.

DR. JANEWAY RESIGNS HIS OFFICIAL FUNCTIONS.

Dr. EDWARD G. JANEWAY has resigned from the chair of the Practice of Medicine at BELLEVUE HOSPITAL MEDICAL COLLEGE, New York. He has also resigned from the Medical Board of the Hospital and as Consulting Physician on the BOARD OF HEALTH of that city.

In explanation, Dr. JANEWAY is reported to have stated that he was unable to attend to his enlarged private practice and also to his hospital and college duties. His relations with the College and Hospital authorities had been most friendly.

Dr. JANEWAY was a Professor at Bellevue College for the last twenty-five years, and during that time he has become a recognized authority in the profession.

NEW BOOKS.

THE YEAR-BOOK OF TREATMENT FOR 1892: A Critical Review for Practitioners of Medicine and Surgery.—Lea Brothers & Co., Philadelphia, 1892; 8vo., pp. 486.

A few changes are noted in the contributors who have had charge of departments of this work during the past year. Venereal diseases have been placed in charge of J. Ernest Lane, F. R. C. S., and Alfred Cooper, F. R. C. S., who had this division in charge last year, takes the new department of Diseases of the Rectum. G. Ernest Herman, M. B., F. R. C. P., has succeeded D. Berry Hart, M. D., in the Diseases of Women, and M. Handfield Jones, M. D., has taken charge, in Mr. Herman's place, of the department of Midwifery.

The last sixteen pages are devoted to a "Selected List of New Books, New Editions and Translations,"—a new departure.

The book is made up of the usual short abstracts of the important papers of the year in all departments of Medical Science, and is of great value to every one interested in the advances made from year to year in all the different specialties.

COOLEY'S CYCLOPÆDIA OF PRACTICAL RECEIPTS, and Collateral Information in the Arts, Manufactures, Trades, and Professions, including Medicine; Pharmacy, Hygiene, and Domestic Economy. Designed as a Comprehensive Supplement to the Pharmacopœia and General Book of Reference for the Manufacturer, Tradesman, Amateur, and Heads of Families. In Two Volumes. Illustrated. Seventh Edition. Revised and Enlarged. By W. NORTH, M. A., Camb., F. C. S.—London: J. & A. Churchill. 1892.

So much has the substance and form of the earlier editions of the work been altered in the present edition that, as it now appears, it is practically a new book. In the years that have elapsed between the appearance of the sixth and the seventh editions of the volume there has been great progress in all lines of science, and this progress, particularly in so far as it relates to those industrial arts in which chemistry plays a part,

is fairly well presented in the volumes before us. The article on photography is particularly full, covering some twenty-four pages, and presenting a very accurate summary of that art from a practical standpoint as it now stands. The articles on insects injurious to crops are virtually reprints from government reports, and are particularly full and complete. While the greater portion of the work is devoted to technology, three pages of it are occupied with a discussion of the physiological effects of alcohol, and "Bacillus" and the subdivisions of the subject fill three and a half pages, from which the wide range of topics treated of may be inferred.

While the illustrations are not very numerous and in some cases, as in the article on "Bandage," by no means very modern, the general typographical appearance of the book is excellent, and, taken as a whole, it may be said that the work is entitled to high rank in the particular field covered by it.

ESSENTIALS OF PHYSICS. By FRED. J. BROCKWAY, M.D., Assistant Demonstrator of Anatomy at the College of Physicians and Surgeons.—W. B. Saunders, Philadelphia, 1892. 330 pp. Price: net, \$1.00.

In this little book the author has not attempted any originality and only professes to have arranged a concise compilation and abstract of Ganot's Physics, Gage's Elements of Physics, Atkinson's Dynamical Electricity, and the lectures of Prof. Charles F. Chandler delivered at the College of Physicians and Surgeons, Medical Department of Columbia College.

The book is divided into five separate divisions. Book I is devoted to matter and its properties; II to heat; III to light; IV to sound; and V to magnetism and electricity.

In relation to these subjects in general the book presents nothing new and can hardly be said to be needed.

As an aid to students who have to be examined upon these subjects prior to their receiving their medical degree, it will be found a great help and will unquestionably serve a useful purpose to a special class of students.

BOOKS RECEIVED.

THE PATHOLOGY OF BRONCHIAL AFFECTIONS AND PNEUMONIA. By A. G. AULD, M.D.—J. & A. Churchill, London, 1891. 8vo.; pp. 207.

SULLA VELOCITÀ DI TRASMISSIONE DELLA ECCITAZIONE NEI NERVI SENSITIVI DELL' UOMO. By Prof. EUSEBIO OEHL, of Pavia (Italy).

SUI CUORI LINFATICI POSTERIORI DELLA RANA.
By the same.

SULL'IDROGENO SOLFORATO in rispetto alla sua Influenza sull'Organismo Animale Sano ed Am-

malato. By Prof. G. PETTERUTI and Dr. G. MARCONE, of Naples, Italy.

INIEZIONI PARENCHIMALI DI PIOCTANINA NELLA TUBERCULOSI POLMONARE. By Prof. G. PETTERUTI and Dr. G. MIRTO, of Naples, Italy.

SULLA REAZIONE DEL LIQUIDO ORALE in Diversi Stati Morbosi. By the same.

ESPERIMENTI ED OSSERVAZIONI ULTERIORI INTORNO ALLA OSSALURIA. By Prof. GENNARO PETTERUTI, of Naples, Italy.

SULLA CHINESEOSCOPIA PRINCIPALMENTE TORACICA. By the same.

RECENT PAPERS.

A SECOND YEAR'S WORK in Diseases of the Rectum, at the New York Post-Graduate Hospital. Charles B. Kelsey, M.D. Reprint from the *New York Medical Journal*.

MY RECENT EXPERIENCE in Operating for the Laceration of the Perineum Involving the Sphincter Ani. With a description of my Method of Flap Splitting. By Horace Tracy Hanks, M.D. Reprint from Transactions of the American Gynecological Society.

THE IMPORTANCE OF UNDERSTANDING the Functions of the Levator Ani Muscle in the Treatment of Injuries of the Floor of the Vagina. By Horace Tracy Hanks, M.D. Reprint from Transactions of the Medical Society of the State of New York.

RULES TO BE FOLLOWED in the Effort to Prevent Mural Abscesses, Abdominal Sinuses and Ventral Herniæ after Laparotomy. By Horace Tracy Hanks, M.D. Reprint from Transactions of the American Gynecological Society.

THE DIAGNOSIS AND TREATMENT of Intestinal Obstruction, and the Management of Greatly Distended Intestines During Laparotomy. By Horace Tracy Hanks, M.D. Reprint from the *American Journal of Obstetrics*.

OPENING ADDRESS before the Medical Class U. V. M. By J. H. Linsley, M.D. 1892.

OBITUARY.

DR. DAVID CLOSE COMSTOCK, aged 51, at his home, No. 83 Lexington Avenue, N. Y., March 24. He was born in Reading, Conn., December 22, 1840. He took his graduating course at Bellevue College.

Dr. EDWARD WIGHT CLARKE, at Englewood, N. J., April 4; of blood poisoning and scarlet fever. Dr. Clarke was born in Manchester, N. H., and was graduated from Columbia College and from the College of Physicians and Surgeons of New York.

Dr. ELIJAH WHITNEY, aged 93, in New York City,

April 5. He was of the same family as Eli Whitney, the inventor of the cotton gin, and was born at Westborough, Mass. He came to New York in 1849, and built up a good medical practice, remaining active in it until two years ago, when he retired.

Dr. LEDYARD VAN RENSSLAER, aged 49, at his home in Burlington, N. J., March 24. He was a graduate of Princeton College.

Dr. SMITH E. HEDGES, at Chester, N. J., April 1; after a lingering illness. Dr. Hedges was born in Chester on November 20, 1830. He was graduated in medicine at the University of the City of New York in 1852, and he practiced in his native village until within a few years of his death.

Dr. GEORGE MONTGOMERY, aged 58, at Newburyport, Mass.; from liver complaint. He was born in Stratford, N. H., and was graduated from Bowdoin College, Maine.

Dr. HENRY R. CANNON, aged 71, Elizabeth, N. J. He was born in New Brunswick, N. J., and was graduated from Rutgers College.

Dr. AARON P. MILLER, aged 65, at St. Luke's Hospital, N. Y., April 9; from locomotor ataxia. He was graduated at the Cleveland (Ohio) Medical College.

TO EVERY PHYSICIAN.

Dear Doctor:

CONTRIBUTIONS OF ORIGINAL THOUGHT AND EXPERIENCES, ON MEDICAL TOPICS, are desired by MERCK'S BULLETIN on the following conditions:

1.—Authors of Scientific Papers or Clinical Reports accepted by us will receive—according to their own preference—either:

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b.—Instead of the above, an equivalent value therefor in CASH.

—Please state, with each communication, which is preferred; and—if Reprints—how many are desired.

2.—All contributions are understood to be received only on the express understanding:

a.—That they have not been printed anywhere;

b.—That if they have been read anywhere to an audience, this fact be stated in full detail by a note on the manuscript.

Contributors will serve their own interest by heeding the following suggestions:

WRITE CONCISELY AND CLEARLY.

What we desire to print, and what Medical men like to read, is information, not verbiage. An article will

stand better chances of acceptance, of recognition, and of being widely read and copied and discussed in Medical circles and Medical journals,—the fewer its words are, in proportion to the facts or ideas it embodies. Of course, a thought too thinly clad must suffer. Use, therefore, cheerfully as many words as appear needed to convey your meaning,—but no more.

AIM AT FACT.

It is not to be expected that every Medical report should be a mere array of statistical data, hospital records, tabulated figures, or graphic summaries; some room must be allowed to theory, or even conjecture in its proper place; but the true aim of theory should never be left out of sight,—which is, ultimately, to lead to fact: to a rule or result of practice. And it should be likewise borne in mind that the Medical reader will attach little weight to mere generalizing statements (such as, that a certain remedy or a line of treatment has uniformly proved efficacious, etc.);—to be convinced, he wants to see positive evidences recorded in clinical detail of cases: conditions found, course pursued, and results achieved.

DO NOT FEAR,

however, that a communication you may be inclined to make would be devoid of value because you have but little time to spend on writing it! If your thought be a good one to yourself and for your patients' benefit, it will be equally so to your colleagues and their practice, and will be worth communicating. It need not come in the garb of an elaborate Scientific treatise: a simple "Letter to the Editor" will often be just as acceptable.

Some Rules of Order we should like to have our esteemed Contributors comply with:

Do *not* write on both sides of the sheet.

Write as legibly as you conveniently can (*names* especially so).

Leave a liberal margin on the sheet, or space between the lines. (*Close* writing is not conducive to correct typography; and what you save in writing-material has to be expended a thousandfold by us in eyesight, labor, and expense for printer's corrections.)

Yours, fraternally.

EDITOR "MERCK'S BULLETIN."

Address: P. O. Box 2535,
New-York City.

CORRECTION.

In Dr. RIGGS's Medical Report in our April number: "The Value of Proteids," etc., on page 185, the paragraph beginning with "The Proteids" and ending with "some animal" should have been printed as a *quotation* from HALLIBURTON.

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CHIEF EDITOR: WILLIAM HENRY PORTER, M.D.,
Professor of Clinical Medicine and Pathology in the New York Post-Graduate Medical School and Hospital.
Foreign Staff:—See under "MEDICINE ABROAD."

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STABILITY OF INORGANIC COMPOUNDS.

The attempt has frequently been made, to outline definite chemico-physiological laws which govern the processes known as animal life.

The proposition has recently been affirmed: that the inorganic substances which are introduced into the system, with the food-stuffs or otherwise, are not decomposed, transformed, or converted into other compounds within the body, nor in the absence of an acid; and that, while these inorganic compounds are passing through the tissues, along with the blood and lymph,—being uniformly alkaline or neutral,—their function is, to give to the body its alkaline reaction and, beyond that, to act merely by their mechanical presence.

The weight of evidence, both physiological and therapeutic, thus far adduced, strongly favors this theory.

In the study of this proposition in its application to the renal secretion, it has been most positively demonstrated that this law holds true. The various mineral salts, introduced with the food-stuffs or as

medicinal agents, are definitely known as regards their atomic composition.

These mineral compounds, whenever absorbed by the entero-hepatic circulation, are taken up without being chemically modified, and carried along, unchanged, through the blood, lymph, and tissues of the body in general. While these inorganic compounds are passing through the system, their action is purely mechanical or physical,—never chemical.

When they have served their purpose in the system, and are finally passing out of the body, with the water, through the Malpighian tufts and the uriniferous tubules, they come in contact, in the lumen of the tubules, with uric acid, which is constantly being formed and eliminated by the epithelial cells lining the uriniferous tubules.

At this point the common law of chemistry at once becomes apparent. The active uric acid attacks the inorganic salts of various kinds which have been carried down from the blood-stream with the eliminated water, and transforms them into urates of their respective bases.

This positively different composition of

the saline elements found in the urine, as compared with those in the blood or food-stuffs, unquestionably led to the commonly taught but erroneous idea, that the inorganic compounds must, in some mysterious manner and at some vague and unknown place in the animal economy, have been chemically decomposed.

Because the food-stuffs contain a comparatively large percentage of the normal phosphates and very little of the mono- or di-hydric phosphates; while in the blood and tissues the normal phosphates are in the minor quantity as against the mono-hydric phosphates, and in the urine the acid phosphates are altogether preponderant, it seemed almost certain that these changes were effected in the system proper. But the disappearance of the hydrochloric acid of the gastric juice—by the conversion, in the intestine, of the normal phosphate of sodium into sodium chloride and mono-hydric phosphate—clearly explains the preponderance of the mono-hydric phosphate in the blood.

The action of the uric acid on the mono-hydric phosphates in the lumen of the uriniferous tubules furthermore explains the formation of the di-hydric phosphates, which are found so abundantly in the urine and which give to that fluid its acid reaction.

In both these instances the transformation has occurred, not in the blood or deeper tissues, but outside the body; that is, in the alimentary and urinary tracts, respectively.

Looking upon the alimentary tract, the bile ducts, and the urinary tract (down from the Malpighian tufts), as “on the outside of the body,”—that is, not within the blood or lymph channels nor in the tissues of the animal organism—all these changes are thus effected *upon the exterior* of the body. They occur in every instance

as the result of an acid acting upon a saline compound; and, in doing so, they follow the known laws which govern the union of acids and bases.

In the recent study of the formation of the gastric hydrochloric acid (published in the April Number of MERCK'S BULLETIN),—which phenomenon has long been cited as proof of chemical decomposition of the mineral compounds within the body,—the common law of inorganic chemistry is found to hold undisturbed sway; but also here the changes are outside the blood and tissues.

The above-cited theory gains still further strength from the formation of sulphuric acid out of the oxidation of the proteid molecule through the agency of the epithelial cells of the gastric mucous membrane. This explanation of sulphuric-acid formation for the first time definitely names the exact spot and the manner in which the sulphur atom in the proteid molecule is disposed-of, in the oxidation of the albuminoid compounds. The sulphuric acid upon the surface of the mucous membrane in the cavity of the stomach,—that is, outside the body,—reacts upon the sodium chloride, and thus forms the hydrochloric acid of the gastric juice and some sodium sulphate. The development of the latter salt in this reaction at once makes clear the cause, manner, and place of origin of the excess of sulphates which has for years been known to exist in the excretions over and above what is taken-in with the food-stuffs; but which, up to this time, had been the subject of mysterious speculative uncertainties.

All these changes are now explained by unquestionable laws of inorganic chemistry, and without the necessity of bringing-in a series of unknown and at best doubtful quantities.

Carrying the same line of investigation into the study of the formation of the bile acids and salts, the same definite laws are found to be as clearly applicable.

The hepatic cells, like the gastric and intestinal mucous membrane, should be regarded as outside the body, structurally speaking; that is, they are not within the blood and lymphatic channels or between two well defined layers of epithelial structure; as, for instance, are the deeper tissues between the surface of the intestine and the common integument.

Each hepatic cell, notably, is inclosed in the blind extremity of a capillary bile duct, in the same manner that each Malpighian tuft of vessels in the kidney is incapsulated in the internal and expanded extremity of a uriniferous tubule.

One of the functions of these hepatic cells is the formation, out of the oxidation of the proteid molecule, of both taurocholic and glycocholic acid. These acids, like the sulphuric and hydrochloric acids in the stomach and the uric acid in the urine, immediately come in contact with the alkaline salts, which are more or less abundantly discharged into the bile ducts. The action of these acids on the saline compounds results in the formation of the neutral taurocholate and glycocholate of sodium and in the transformation of the pre-existing normal sodium salts into mono- or di-hydrogen compounds.

In this manner the formation of the bile salts and the primarily neutral action of the bile, in the smaller biliary capillaries, is easily explained. If, for any reason, there is defective production of the bile acids, the reaction of the bile may become quite markedly alkaline; while, on the other hand, over-production of these acids may give rise to absolutely acid and unduly irritating bile. But, as a rule, normal bile

is either neutral or but faintly alkaline in its reaction.

So far, in this study of physiological chemistry, no difficulty has been encountered in clearly explaining all the known transformations and decompositions of the inorganic compounds after they are introduced into the mouth, and up to the time of their exit from the body. The common laws, which are known to govern chemical reactions between inorganic bodies in the test-tubes and retorts of the laboratory, have been found to act with equal precision in the metabolic organs of the animal organism.

The valuable and highly practical result of all this kind of study is the fructification of exact chemical knowledge toward *a more intelligent application of our therapeutic agents*. It will thus help to lift the science of medicine out of the lap of empiricism and to place it on its own feet, as an exact science.

By adhering closely to the chemical laws, the therapeutic utility of the Iron Salts has been elucidated. Out of the same class of laws a rational explanation has been evolved for the *modus operandi* by which the Mineral Acids yield their virtues to the organism.

Thus, also, the clinical fact, so long empirically known, that one acid acts better than another, is clearly traced as the inevitable sequence of a given cause; while, at the same time, every step of chemical action by which one kind of acid can have greater physiological and therapeutic activity than others of the same common group, has been plainly set forth.

Of greatest practical value, however, is such study to the practitioner by furnishing him with precise knowledge—as illustrated, for instance, in this question of mineral acids—when and why to give the one remedy in preference to another. It

also teaches when to administer remedies of a given group and when to withhold them. An instance of its teaching will be found in our paper on Mineral Acids (see page 305).

IODISM.

Iodide of potassium has generally been considered as comparatively harmless. The maximal dose has been given as high as several hundred grains in the twenty-four hours.

This innocent nature of the iodide salts is very much a matter of grave doubt.

Attention is especially directed to an interesting statement regarding the symptoms of iodism and their prevention, that will be found among the "PRACTICAL HINTS" on page 340 of the present Number.

In that paper some quite interesting cases are recorded, in which alarming symptoms were developed by the internal administration of iodides in what may be called—by contrast with the usual dosage—almost no dose at all.

The methods of treatment are also described, and suggestions are given how to prevent iodism.

To all who have used the iodides extensively, similar results must have happened from time to time.

There is another class of cases not mentioned in the article alluded-to, which are worthy of notice in this connection.

Namely, a class of cases in which the patient, who has taken large doses of the iodides, will suddenly and almost without warning become comatose and remain in deep coma, which apparently has resulted from some uræmic or profound cerebral lesion, but in which the urine gives no evidence of an active renal lesion. Left to themselves without any treatment, they slowly and perfectly regain complete consciousness and functional activity, and

can again resume the iodides apparently as if nothing had happened.

There is still another class of iodic symptoms, which have been noted to follow the injection of large quantities of iodine solutions into various cysts. In these cases there are signs of collapse, followed after a little by the appearance of fever, rapid pulse and a flushed face, but without any rise in temperature. This condition has passed off, but during apparent convalescence the patients have suddenly died.

Assuming that the inorganic compounds are not decomposed within the body, but act there solely by their mechanical presence, a somewhat logical explanation is found for these peculiar actions.

Where the system is in a fairly normal state—absorption, secretion, and excretion being actively at work—small doses even, of the iodides, by irritation from their mechanical presence, often over-stimulate the system. Nature, in her vigorous efforts to rid the system of the foreign and offending substances, increases the activity of the excretory forces. The mucous membranes join in the action, and the conjunctiva, the Schneiderian membrane and the upper respiratory tract become largely congested and œdematous.

In most of the recorded cases in which a troublesome œdema glottidis was developed, there was a deteriorated and watery condition of the blood, which in itself rendered the development of œdematous conditions highly probable upon the slightest provocation.

In subjects saturated with syphilitic infection, with the vascular walls implicated and the protoplasmic masses throughout the body in an abnormal state and often inactive to any kind of natural stimulation,—enormous doses of iodides can be run through the system without

causing much response from the glandular organs or bodily functions.

On the other hand, after changes have been effected in the digestive functions and the absorptive and assimilative powers have been improved, the nutritive activity of the protoplasmic elements will be restored to a normal standard. When this increased tone of the system has been fully re-established, small doses of the iodides will become more irritating or even poisonous in their action, and will, in most instances, be found sufficient to excite active symptoms of iodism. Thus we have explained the fact that in some instances large doses of the iodides produce almost no effect upon the system, while in other cases pronounced symptoms of iodism follow upon the administration of the smallest doses. In fact, the two

clinical pictures are often witnessed in the same case but at different times, in the course of a treatment which requires the continued administration of the iodides.

Anything that will retard the absorption of the iodides or change them into less irritant compounds will, of course, prevent symptoms of iodism; and, cutting down the drug, or withholding it altogether, will achieve like results.

The sudden development of the comatose condition appears to be due to a disturbance in the proteid oxidation, and to the consequent rapid formation of leucomaine principles that temporarily hold the cerebral functions in abeyance.

Notice.—The study on "FOOD VALUES" will be continued in next Number.—[ED.]

MEDICAL REPORTS

TO "MERCK'S BULLETIN."

TUBERCULOSIS.

By J. KORNITZER, M.D.

I.

A dread scourge is tuberculosis,—there can be no doubt about it; but, *entre nous*, the "*tuberculin epidemic*,"—lately visiting the medical world, and the vertigo of which has turned many an able brother's head,—is not to be counted as trifling either.

But a while ago, woe to him who in talking about tuberculosis had the temerity to use other than the slang in "scientific" fashion at the time. "He is behind time—not up to the level of modern medicine," they would have said of him, and even had it been VIRCHOW himself.

How such a thing could possibly happen to the community of learning, is a question as legitimate, as easy of explanation. Just start from erroneous premises—say an erroneously assumed parallelism—and the concluding-apparatus will, quite automatically, do the rest.

And the instance at hand is a highly instructive illustration to the purpose, and only a repetition of what has occurred time and again in the history of science. This is said without, however, in the least discouraging investigation or detracting from the merits of its noble endeavors.

1. The acarus has been discovered in scabies, and the mite experimentally demonstrated to be 1st, the *exclusive*, and 2nd, the *never-failing* cause of the pustule. Hence the therapeutical indication, "destroy the parasite and 'be then clean'," can confidently be pronounced over the infested.

2. Specific bacteria have been discovered to be present in the so-called infectious or zymotic diseases, and the injection of such bacteria into the circulation of animals was found to produce, in the trial objects, diseases resembling the original ones. Hence: those bacteria are the exclusive cause (?) of disease, although *not the unfailing*

one;—a peculiar morbid disposition of the individual invaded being required for the appearance of the pathological effect. Consequently, beside prophylaxis, the causal indications in these diseases call for *disinfecting, bactericidal* treatment.

3. A specific bacillus has been discovered to be regularly present in tuberculosis, and because a subcutaneous injection of a fluid, containing such bacilli, excites in the trial animal a disease closely resembling tuberculosis, therefore the invasion of such bacillus into the human system *must* be the exclusive cause of tuberculosis; although here, too, as in zymosis, a predisposition for being morbidly affected by the bacteria, is *the* preliminary condition. Hence, tuberculosis is an acute, infectious, parasitary disease (?), which calls for bactericidal treatment. This successful, the case of tuberculosis will be *cured* (?), as is, under a similar treatment, a case of scarlatina, etc.

For all practical purposes—I mean the practitioner's therapeutical intentions—the pretended parallelism may be considered admissible as sufficient (although by no means as indisputably correct); for destruction of parasites is, in fact, the peremptory indication in all cases alluded-to.

But, as we try to prolongate the lines, their divergence becomes apparent. Whilst acarus will unfailingly bring-on itch in every individual invaded,—for our different microba to bring on the specific diseases, the invaded individual's specific susceptibility of being injured by said bacilli is a preliminary requisite.

Moreover, whilst the zymotic diseases have their *typical course and duration*, and if not ending fatally, terminate in *full recovery*, nothing of the kind can be said of tuberculosis.

Now, I believe, in the case of tuberculosis, the seeming parallelism has of late been adhered-to rather too strongly, and the evident divergence slighted somewhat too wrongly. As a natural consequence, everybody started out on a biased line of therapeutical indication marked out at Berlin, eagerly a-hunting for bactericides *only*. "Death to Koch's bacillus, *finis tuberculosidis!*"

was the watchword of the day. Corrosive sublimate, benzoates, creasote, chloride of gold, cantharidin, tuberculin (!), tuberculocidin (!!!), kakodylic acid—*anything* was welcomed, only let it kill the bacillus and *cure* tuberculosis. Nobody stopped to consider what *that specific pre-disposition* for tuberculosis means; what it consists of or in. Nobody seemed to stop for saying to himself that such *specific susceptibility*—by itself a distinct pathological conception and avowedly a *conditio sine qua non*—may perhaps be worthy of some study,—and this, too, for *therapeutical* purposes: the highest end and duty of all medical study and endeavor.

From what I have seen during a life-long observation, naturally close and attentive, I feel entitled to say this:

Some individuals are *born* with tissues more or less (*) morbidly susceptible of lesion, and of but slow disposition to spontaneous healing in case of such lesion. Why such individuals should exhibit so little energy of histological cohesion and reproduction, I don't know. May be, they do not ingest or digest histogenetic materials enough, or they eliminate them too freely;—a fact it is, that individuals of normal tissues will go forth unscathed from noxa which will inflict greater or lesser injuries upon those more or less *pathologically* vulnerable.

First in order, in regard to this constitutional disorder, stands, as a matter of course, the most tender among the anatomical structures: the mucous membrane of the respiratory organ. Next come the synovial membranes; then the periosteum, then the lymphatic glands, the genital organs, the skin, etc., etc. (I do not wish to be taken by the word in regard to this classification, though.)

Now, it is a fact generally known, that there is hardly a human being in a thousand but he or she contracts a dozen or two of now slighter now severer "colds" per annum. The congestion to the respiratory surface brought on in these catarrhs passes by harmlessly in the tissue normally stout, but not so in a histological fabric which is pathological in the sense alluded-to.

* The scale is an immensely long one and copiously subdivided.

Here small, perhaps microscopically small, ruptures of continuity, miniature losses of substance, say, of a few epithelial cells only, will take place;—in a word: *ulcers* are set!

And wherever there are ulcers (be this in the lungs or elsewhere) a certain species of bacteria will not be very long in making their appearance, in order to lay claim upon the desirable soil, settle down bona fide, and "eat and drink and be merry."

And wherever there are ulcers unprotected from the atmosphere and under continuous irritation, there will be found in the next surroundings: inflammation, induration, hypertrophied tissue in all stages of decay ("tubercles in all stages of maturity," we used to term it), and all the rest of the morbo-anatomical appearances, so masterfully described but erroneously interpreted by the old authors, who considered the tubercle an idiopathic, malignant—*i. e.* early-decaying—neoplasm.

From what I have said, it will be understood that it is neither a peculiar neoplastic idiocrasy, nor any specific bacillus I am looking-to for an etiology of pulmonary consumption or tuberculosis proper. What is usually called *predisposing susceptibility* for tuberculosis is, to my opinion, a congenital histological debility, by itself a disease, to which the subsequent phenomena—inflammation, ulceration, the invasion of bacilli (phthisis), induration, decay of hypertrophied tissue, etc.—*are mere advancing stages*, so to say.

I should certainly have refrained from molesting the kind reader with my etiology, had I not by this very theory been induced to try a treatment which after an eleven years' experience has proved the most successful of all I ever heard or read of, or practiced myself.

I am not going to try to make the profession believe that in proceeding to my method I was following the flambeau of my genius. Nothing of the kind. What I did, was a mere act of empirical analogizing which I resorted-to when at the end of my lore.

On a certain occasion, and at my request, the late Dr. KRAKOVITZER, in New York, advised me to apply the constant current to old, callous

ulcers on the legs of a man under my treatment. I did so then and ever since in similar cases, and never but with most gratifying results.

This was in 1872. A few years later (1875), when living in Topeka, Kas., I was called-upon to attend a lady (*æt.* 35) suffering from the symptoms of incipient tuberculosis. Her family record could not possibly have been any worse. I did "my best," but, as invariably in all such cases, the disease made headway—slowly but steadily—till, in the beginning of 1881, I was urgently called to the bedside of my patient. It was an alarming pulmonary hæmorrhage I had to cope-with this time; which, however, I soon succeeded in checking.

But now the character of the disease assumed its dread features.

A large cavern in the left lung manifested itself by large-bubbled noise; expectoration was copious; daily chills, followed up by high fevers and night-seawts, emaciation, languidness, and above all, *hoarseness and a distressing pain in the left part of the larynx*; all seemed to presage a painful lethal end near at hand.

It was then (1881, KOCH's bacillus was not known yet), when it struck my mind that, having to deal with tissue lacerated with *ulcers*, I should apply electricity, the long-tried agent which, for nine years previous, had never left me without success in the worst cases of non-syphilitic ulceration—fistulous or otherwise.

In want of a *rationale*, I resigned myself to the humble expedient of a *reason*: ulcer is ulcer, I thought, and *must* yield to mighty electricity. The tissues of the chest are as good conductors as the moist sponges of my electrodes, and so the current cannot fail in reaching the seat of the disease. So, you see, Dr. KRAKOVITZER's advice was *reason* enough for me to *try* galvanism on external ulcers; and success in this induced me (late enough!) to *try* it in pulmonary ulceration,—I caring but little about the *modus operandi*.

How "unscientific"!

Not quite so, my dear reader. I cared *little*, I said, about how electricity works upon ulcerated tissue; but that little I *did* care.

By charging the tissue elements with electricity (so I reasoned), they are made more attractive to one another (not in a romantical way, though) and willing to be "strong in union."

Previous to KOCH's discovery of the bacillus, this theory seemed to me good enough to act on its strength—and so I did.

And with what success! From the very first *séance*, improvement became manifest, and after a few months' assiduous application my patient was able to go after her household occupation with wont industry.

For now eleven years past I cannot remember the lady having failed to prepare one of the daily meals, or to partake thereof;—never on account of lung trouble, anyhow.

This lady, like other people, will "catch" her coughs and colds, and sometimes *very hard* ones, too. But she and I, both, have long ago given up being alarmed on such occasions. Such attacks, with her, pass-by strikingly quicker than with other people, on account—as I have good reason to believe—of the electricity *she has been daily applying (in a very mild current, though) all through these years.*

Nearly fifty-two years old, the lady gets up at six a. m., and after a day's arduous work she has energies enough left in the evening to read her paper before going to bed at about ten p. m.

In February, 1882, I removed to Socorro, N. Mex., my present abode, and so did my lady patient. She and I, both, have all reason to consider this migration a highly felicitous move, because this is a climate with hardly its equal on the globe. Besides an occasional two-grain dose, at bed time, of pulv. Doveri, all other medicines which I, for prophylactic or theoretical reasons, had proposed, were energetically rejected. But then, never, all through these years, the slightest disturbance of digestion occurred. The stomach, all this time, has been the receptacle for food only.

Soon after KOCH's discovery of the bacillus, I, of course, "got me" a "brand-new" *rationale* for my electro-therapy in phthisis and other ulcers; it is this:

By the agency of the galvanic current the air in the lungs or, respectively, in the interstices of any other tissue, is ozonized and thus converted into the best of bactericides.

Should those of my readers who are able to do so, succeed in sterilizing, by galvanism, fluid containing bacilli, and be kind enough to let me know, I will feel much obliged and consider electro-therapy in tuberculosis a full success. The method of application (the particulars of which I will give in my next article—if I am allowed to do so) is extremely simple.

A *full* success, I say; because, by generating bactericidal *ozone in the lungs*, we stay ulceration, and whatever reactive inflammation, consolidation, etc., may be around it;—hence, improved respiration;—hence, improved sanguification;—hence, generally improved nutrition of tissues, as visibly instanced in my patient, who, for many years had suffered from catarrh of the mouth, and lichen and onychitis on her hands; but has for the last four or five years been free of these disorders.

SOCORRO, N. Mex.

GALVANIC ELECTRICITY has served Dr. SOMER well in *vaginismus*.

COLLINSONIA TINCTURE, in 15-drop doses, has been praised in the laryngitis known as "*minister's sore-throat*."

CAMPOR MONO-BROMIDE has been found efficacious in cases of *spermatorrhœa* where all other remedies had failed.

AMMONIUM ACETATE (1½–2 drams a day, according to the age of the child) has been employed with apparently good results in *scarlet fever*.

MERCURY SALICYLATE, in doses of 1/6 grain five times daily, is regarded by many practitioners as a most satisfactory remedy in *syphilis*—being well borne by the stomach, producing no stomatitis, and acting more promptly than the other mercurials.

TREATMENT OF PNEUMONIA FROM A SYMPTOMATIC STANDPOINT.

By LUTHER SEXTON, M.D.,

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As the great majority of diseases the physician is called upon to treat are affections, in some form or other, of the respiratory passages, and as pneumonia is one of the gravest of them all, a few points in regard to the symptomatic treatment of pneumonia may prove of interest.

ETIOLOGY?

In this age of the germ theory of disease it is not strange that we should find pneumonia classed in this category. Croupous pneumonia, however, usually presents a clinical course so uniform and so much like the infectious diseases, that it is not surprising that pathologists should seek its cause in this direction. The diplococcus of FRAENKEL and the pneumococcus of WOLFE are germs that are at present bearing the odium of pneumonia production. Out of the rusty sputa of 70 cases examined by WOLFE, 66—or 94 per cent—contained the diplococcus.

Verifications were established by cultures and inoculations with the diplococcus in one-half the cases. If the pneumococcus is in reality the cause of pneumonia, it, in a measure, explains the contagious idea of the disease. We could then understand how the sputum, dried and desiccated, might be air-borne, raised in the patient's room by sweeping and dusting, inhaled into the lungs of others, and there developing the same disease. If there chanced to be an abrasion or ulceration of the mucous membrane of the lung, the vaccination would be direct.

MORTALITY.

HARTSHORN says, that during the second quarter of this century the mortality of pneumonia was 8 per cent. It is now from 16 to 20 per cent, according to the BRITISH MEDICAL ASSOCIATION. Prof. LOOMIS says it was 15 per cent greater in New York between 1859 and 1877, than between 1840 and 1858. Figures, however, are very delusive, especially when so many different people are responsible for the correctness of diagnosis. Types of the disease

doubtless change with different epochs. Again, this discrepancy in rate of mortality may be in part accounted-for by the fact that formerly it was common to call the slightest cold pneumonia; as a matter of course such cases were easy to cure, thereby reducing the death rate. Dr. HUGHS BENNETT is reported to have lost only four cases out of 129 treated. He used pretty much the same remedies as the regular profession do now. He was opposed to venesection. LIEBERMEISTER treated 110 cases with a mortality of only 10 per cent. His plan was, to sponge with water of 68° F whenever the fever rose to 104° F.

NONE BUT SYMPTOMATIC TREATMENT AVAILABLE.

This short resumé of the fatality of pneumonia is given for two purposes. First, to show that apparently, from statistics, doctors are treating pneumonia with less curative effect than formerly; secondly, that in any disease whose range of mortality is from 10 to 25 per cent the discrepancy is too great, showing something to be radically wrong. Until the etiology of pneumonia is better understood, its treatment is more or less empirical or symptomatic and expectant. We have been treating a name too long, to the neglect of symptoms. In this age of fads, medicine keeps up with the procession by having its germ-theory fads on the *materies morbi* in every disease. Whether the pneumococcus is or is not the cause of this trouble, will not affect the symptomatic treatment of the malady and getting the patient well regardless of the cause. In the outset, it should be remembered that the majority of uncomplicated cases of pneumonia recover in from five to fifteen days, if only fresh air and nourishment be allowed. One reason why mortality in hospitals is so great, viz., from 25 to 33 per cent, is this lack or want of fresh air. Another reason why the mortality during the war between the States was so small, is due not to huge blisters, tartar emetic, and venesection; but patients got well *in spite* of these remedies, owing to the pure air on tented fields and the unadulterated supply of oxygen to the

congested lungs, as their breathing capacity diminished.

THE USUAL SYMPTOMS

we have to combat in acute croupous pneumonia are (1) pain; (2) pyrexia; (3) dyspnoea; (4) heart-weakness; (5) cough and expectoration.

PAIN

is the result of the pressure of the leucocytes, lymph, and other products of inflammation upon the sensory nerve filaments of the lung structure. To relieve this, hot applications, as of poultices or preferably bags of hot water, do a great deal towards relieving this congested condition of the capillaries, causing the blood to be distributed more evenly; but here, as elsewhere, opium is the sheet-anchor when it comes to relieving pain. A splendid combination in the first stages of pneumonia is extract belladonna, $\frac{1}{4}$ gr., gum opii, (fresh), 1 gr.; these pills can be repeated every three hours, or cut in half and given every hour, till pain is relieved. A prompter action, if the pain is intense in the beginning stages, is afforded by a hypodermic of morphine and atropine. After consolidation of the lung tissue, hypodermics and opium should be given in small and far-apart doses if given at all. An occasional 10-gr. dose of antipyrine or phenacetin relieves pain, reduces fever, promotes diaphoresis. These remedies, like opium, should be used cautiously, watched very closely and not often repeated; fatal stupor in one instance and cyanosis and heart-failure in the other are the disagreeable symptoms these agents are liable to produce, if unduly pushed. Equal parts of bromidia and syrup morphine, in from thirty to sixty-drop doses, may be given for pain when a solution is preferable to a pill; or the morphine and atropine, $\frac{1}{4}$ and $\frac{1}{120}$ gr., may be given internally instead of hypodermically.

In relieving pain, be sure you do not produce constipation at the outset; the bowels ought to be well cleared out by 3 grs. each of calomel and soda, or by cascara sagrada, or compound cathartic pills, or enemas; for if they are bound up by the use of opium the fever is sure to rise.

PYREXIA

is the next symptom demanding our attention.

Its intensity and persistence usually depend upon the amount and acuteness of the invasion, and in malarial districts on the dual action with the malarial poison. The antipyretics can very properly be divided into those which abstract heat directly from the body,—as the application of water and diaphoresis;—and those which diminish the fever by entering the tissue and being burned instead of the tissue, or else by stimulating the inhibitory heat-nerve-centres, or by lessening the oxygen-carrying powers of the red corpuscles. Antipyrine and phenacetin act splendidly as antipyretics in small doses, having the double function of allaying pain as well as reducing temperature. They should be used only in the first stages, and even then their action should be watched. Quinine is *always* orthodox in combating fever; and pneumonitis is no exception to the rule.

Salol (which is 40 per cent carbolic acid and 60 per cent salicylic acid), with quinine, each 2 grs. in capsules, makes an admirable combination, and controls the fever in many cases.

The general prejudice against cold sponging is so common among the laity that, although Dr. Fox and others speak in its praise, it may never come into general use. A splendid substitute, however, is the tepid sponging, which is a splendid antipyretic and at the same time quiets delirium and restlessness.

WEAK HEART

is a prominent symptom of pneumonia; it is not unnatural that it should be, when we think of the toxic blood whereby the heart is fed,—also, the resistance it meets in trying to force the blood into and through the solidified lung. To brace up the flagging pulse is the doctor's chief function; this is best accomplished by ammonium carbonate in 10 gr. doses.

Infusion of digitalis is far preferable to the tincture or fluid extract, which are often inert from age. Good whisky or brandy may be given, if the heart is not irritable and the patient is not too nervous; they are best used as egg-nogg, or milk punch, as these forms serve as both food and medicine.

A splendid stimulant and laxative is: piperine-

grs. x, syr. rhei $\frac{3}{4}$ iv; m. et. sig.: teaspoonful doses three hours apart, till bowels act well. Nitro-glycerin in $\frac{1}{100}$ -gr. tablets acts as a quick and diffusive stimulant if collapse is imminent. Hot beef-broth, or tea with ginger, act as stimulants and food at the same time, spurring up the flagging circulation.

With the theory that pneumonia was due to a pneumococcus, sprung up the idea of treating it by the inhalation of carbolic-acid spray, or a two-per-cent solution of pyoktanin, and some of the essential oils. One of the most-used inhalations is compound tincture of benzoin, fl. $\frac{3}{4}$ ii, in a quart of hot water,—freely drawing-in the steam. We doubt the efficacy of these remedies beyond the relief afforded to the

DYSPNŒA

by the inhalation of the steam, which is always grateful in such cases. Even if these mixtures were germicidal in action, and not harmful to the subject, it is a matter of impossibility that the spray or injection can come in contact with all the germs. This plan of treatment is yet in the experimental stage; just what results we are to expect from it, is not yet determined. I feel confident, however, that the introduction of any germicide or other foreign substance into the lungs is reprehensible.

Liquefaction of the exudation, and allaying of

COUGH,

call for treatment. Wine of ipecac, sprayed into the throat, keeps it moist and allays the coughing to some extent. Chloride of ammonium, grs. x, syrup senega $\frac{3}{4}$ i, every hour or two, is a splendid expectorant cough mixture. Syrup morphinæ, syrup scillæ, equal parts, is the best sedative cough mixture in teaspoonful doses; add fluid extract ergot $\frac{3}{4}$ ii to this, and you have a good remedy for hæmoptysis, if this should be a complication.

GENERAL CAUTIONS.

In treating pneumonia, use *carefully* the following agents, viz: venesection, veratrum viride, aconite, tartar emetic, the coal-tar group of remedies (as acetanilide, etc.).

Remember also, that pneumonia as yet has no specific treatment; that it is a disease that

tends to defervescence any time from the 3d to the 10th day, and thus the success of many pet remedies in its treatment is merely the result of happy coincidence; that over-stimulation is as bad as none at all; and that with symptomatic treatment—carefully fostering the strength by proper nourishment and fresh air—the great majority of cases will recover without resorting to more than two or three of the drugs mentioned in this article.

THE THERAPEUTIC UTILITY OF THE MINERAL ACIDS.

By WILLIAM HENRY PORTER, M.D.

The practical usefulness of the mineral acids, such as the nitro-hydrochloric, hydrochloric, nitric, and phosphoric acids, is almost unquestionably admitted. That the nitro-muriatic acid is generally found, in clinical experience, to yield the best therapeutic results is also equally true.

GENERAL STATEMENTS.

If attention is turned to the standard works upon materia medica and therapeutics, the common statement is found that these acids are good for this and for that condition. The assertion, however, is generally made in the most empirical manner and often without any attempt whatever at a logical, physiological, or chemical explanation.

LAWS OF ACTION.

Having elaborated the fact that there is a chemico-physiological law governing the inorganic compounds while in the animal economy, this law may briefly be stated thus: The inorganic compounds are not chemically decomposed within the alkaline blood and lymph streams or in the deeper tissues of the body, nor in the absence of an active acid agent; but whenever they are changed, their transformation into other compounds takes place upon the surface of the body, structurally speaking. This occurs, for instance, upon the surface of the gastric mucous membrane, as illustrated by the formation of the hydrochloric acid which is constantly effected in the stomach in the normal condition (see page 194, April No.). Another instance of this kind is shown in the urinary

changes in the lumen of the urinary tract (see pp. 3 to 15, January No.); and a third one is demonstrable in the formation of the biliary salts in the lumen of the bile ducts (see page 297).

ACTION OF WATER.

Before beginning the detailed study of these acids, a word in relation to the chemical and physiological action of water in the animal economy is necessary.

This slight digression is more especially necessary at this time, because two molecules of water, which are contained in the nitro-hydrochloric acid, $2(\text{H}_2\text{O}) + \text{NOCl} + \text{Cl}_2$, disappear in the transformation of this acid in the stomach, as explained below. Attention, however, is called to the fact that all these chemical reactions are developed in the cavity of the stomach or within the lumen of the intestine, both of which are considered as being on the outside of the body, and not within the blood or lymph streams or in the deeper tissues of the animal organism; while, in the vascular system and internal tissues, water acts not chemically, but alone by its mechanical presence.

[This statement is distinctly made here, to prevent misunderstandings in regard to what has been said, on page 3 of the present Volume, on the action of water.]

CHEMICAL MANUFACTURE OF WATER IN THE SYSTEM.

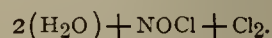
That water is chemically manufactured within the body daily, cannot be denied. The surplus of hydrogen which is necessarily left over, after exhausting all the carbon and oxygen normally contained in the fats, is joined to the oxygen introduced through the respiratory act, and results in the formation of water. The excess of hydrogen remaining after the carbon, nitrogen, and sulphur of the proteid molecule have been satisfied, is naturally joined to oxygen, with the formation of water.

In this way, about four hundred grammes of water are produced daily, over and above what is taken into the system in the free and combined state; all of which, however, is developed by the katabolic metamorphosis of the proteid and fat molecules contained in the foods, and

not from the transformation of the inorganic compounds.

With these minor points clearly understood, the study of the physiological actions and therapeutic utility of the mineral acids can be intelligently prosecuted.

NITRO-HYDROCHLORIC ACID



First let us investigate the action of the nitro-hydrochloric acid; which is said by common experience to be the most active therapeutic agent of this class of acid compounds.

In the ordinary text books, this acid is said to be especially serviceable in the treatment of gastric and intestinal indigestion, also in the so-called functional derangements of the liver, and in many of the chronic lesions of the hepatic gland.

INABILITY TO REACH THE LIVER.

Natural conditions would indicate that this powerful compound acid could not pass through the animal tissues to reach the blood and be carried, in its pure and unchanged form, by the entero-hepatic circulation up to the hepatic cells,—then and there to act upon the functions of the liver. Being an acid of such intense power that it will readily dissolve gold, it is quite reasonable to suppose that this acid will find, in the mixed contents of the stomach and intestine, some chemical compound which will satisfy its active chemical affinities.

COMPOSITION.

Assuming this latter proposition to be a correct statement of the facts, by working from the chemical composition of the acid as given in FOWNES'S "Chemistry," (*) viz.: $2(\text{H}_2\text{O}) + \text{NOCl} + \text{Cl}_2$; it becomes quite an easy task to follow out the chemical actions that can be, and undoubtedly are, developed when the nitro-hydrochloric acid is introduced into the stomach as a therapeutic agent.

CHEMICALLY TRANSFORMED IN THE STOMACH.

The nitro-hydrochloric acid with this formula $[2(\text{H}_2\text{O}) + \text{NOCl} + \text{Cl}_2]$, when it reaches the

(*) FOWNES-WATTS, Manual of Chemistry. Philadelphia: Lea Brothers & Co., 1885. Page 196.

stomach, acts upon a molecule of the sodium chloride in the gastric juice, and yields the following result: $(2\text{H}_2\text{O} + \text{NOCl} + \text{Cl}_2) + (\text{NaCl}) = 4(\text{HCl}) + (\text{NaNO}_3)$. By this simple reaction there is produced, from each molecule of the acid reaching the stomach, four molecules of hydrochloric acid and one of sodium nitrate.

To have produced the same amount of hydrochloric acid by the usual physiological method of nature for forming hydrochloric acid, as fully described in explaining the normal production of the gastric acids (page 194), would have required the formation, first, of two molecules of sulphuric acid by proteid katabolism; then the H_2SO_4 would have to split up four molecules of sodium chloride, thus: $2(\text{H}_2\text{SO}_4) + 4(\text{NaCl}) = 4(\text{HCl}) + 2(\text{Na}_2\text{SO}_4)$. This yields four HCl molecules, the same as occurs with the aqua regia; but it has necessitated the outlay of considerable oxygen and energy in the chemico-physiological processes of the system.

NORMAL AND THERAPEUTIC ACTIONS COMPARED.

By this comparison, it is clearly evident that the introduction of the nitro-muriatic acid ultimately yields a large amount of HCl to the gastric juice, without the necessity of first splitting up the proteid molecules to furnish the sulphuric acid to decompose the sodium chloride, and thus secondarily form the hydrochloric acid.

Therefore, by using the nitro-hydrochloric acid when there is a condition of suboxidation, the oxidation powers of the body are relieved, and the functional activity of the gastric epithelial cells spared the necessity of secreting the sulphuric acid. At the same time, the albumin in the stomach is, by this large production of hydrochloric acid, rapidly transmuted from its alkaline state into an acid-albumin or syntonin, in which condition it can be quickly peptonized, either by the natural peptic ferment secreted by the gastric mucous membrane, or by an artificially supplied ferment introduced with the food.

INDICATIONS FOR USING.

The therapeutic indications for the use of the nitro-hydrochloric acid, so far as the stomach and its functions are concerned, are as follows:

In all states of the system in which there is a faulty action or suboxidation of the proteids, it should be given; especially so, if associated with this there is an inability on the part of the gastric mucous membrane to form the sulphuric acid from the proteid molecule, and through the agency of the H_2SO_4 the necessary hydrochloric acid.

ABNORMAL ELIMINATION OF SULPHUR.

In all instances of marked suboxidation, the sulphur, which normally would leave the system by the action of the surface epithelial cells of the gastric mucous membrane, as described in the article on the formation of the gastric acids, passes off through the intestinal mucous membrane, forming sulphuretted hydrogen; or the sulphur may be excreted in the urine in the form of ethereal sulphates.

Therefore, before administering the nitro-hydrochloric acid, the urine should be carefully examined for the abnormal products of suboxidation. If they are abundant, the acids will afford relief. Clinical observation has repeatedly shown that those forms of suboxidation in which the oxalic acid predominates, and in which the oxalate of lime is abundant in the urine, are the cases which will be most benefited by this particular form of acid.

On the contrary, when the gastric mucous membrane is performing its function effectually and the proteid substances are perfectly oxidized, the administration of nitro-hydrochloric acid tends to disturb the digestive tract and the nutrition generally. Consequently, great care must be exercised in determining the existence and degree of this condition of suboxidation, before administering the acids.

REACTIONS IN INTESTINE.

With the improved gastric digestion which has been brought about by the acid in the stomach, there is of necessity carried over into the intestine a more perfectly peptonized pabulum and four units of the hydrochloric acid and one of the sodium nitrate.

This large proportion of acid from the stomach stimulates intestinal activity when the gut is reached. The HCl in the intestine reacts

upon the normal phosphate of soda contained in the food-stuffs or excreted by the pancreas, and converts this phosphate into a hydrogen-di-sodium phosphate, which is found to exist in considerable quantities in the normal blood and tissues. Thus $4\text{HCl} + 4\text{Na}_3\text{PO}_4 = 4\text{NaCl} + 4\text{Na}_2\text{HPO}_4$.

PRODUCTS GAINED IN THE INTESTINE.

This transformation in the intestine results in the development of three *extra* molecules of sodium chloride, which salt is one of the most essential in the perfection of the process of endosmosis. With this there are also taken into the entero-hepatic circulation the above-noted four molecules of hydrogen di-sodium phosphate, besides the one of sodium nitrate previously formed in the gastric cavity,—all of which are freely soluble in water and neutral in their reaction.

By this augmented endosmotic action through the agency of the sodium chloride, together with the increased supply of the phosphate salts in the blood, absorption of the nutritive pabulum from the lumen of the intestine is more actively effected and a larger amount of perfectly digested pabulum is carried up to the liver; general assimilation and nutrition is enhanced, and all the secretions and excretions are improved, both in quality and quantity. With this improved composition of the secretions, their physiological activity is intensified.

ACTION OF THE NITRATE.

As the nitrates are not commonly found in the urine, the natural inference is that these compounds are largely thrown out of the blood with the bile, by the excretory action of the hepatic cells.

This physiological phenomenon, together with the greatly improved nutritive activity of the system which has been established by the chemical changes effected in the stomach and intestines, easily explains the increased flow of bile and also the decided improvement in the quantity and quality of the biliary secretion.

Thus we have explained the stimulating effect of the nitro-hydrochloric acid upon the hepatic cells, and the method by which both

the quantity and quality of bile is augmented by the internal administration of the nitro-hydrochloric acid. Neither has it been necessary to carry the acid through the organic tissues to produce the stimulating or cholagogue action commonly credited to this acid.

POSSIBLE EFFECTS ON THE URINE.

Following this line of argument a step further, it is clearly apparent that nitro-hydrochloric acid can have no influence whatever in causing the urine to change directly from an alkaline to an acid reaction. On the contrary, this mineral acid, by improving general nutrition, oxidation, etc., will tend to decrease the abnormal production of uric acid and of the by-products found in the urine, which have resulted from an imperfect katabolism of the proteid molecules. In this way, the mineral acid tends to decrease acidity rather than alkalinity.

In some rare instances, however, in which an alkaline condition of the urine is the sequel to a prolonged superacidity of the urine leaving the kidneys, the nitro-muriatic acid, by converting a state of suboxidation into one of normal activity, may cause the superacid urine eliminated from the kidneys to become normal; thus removing the irritation which has caused the hyper-secretion of mucus in the renal pelves and the secondary alkaline change in the urine before leaving the bladder; thus explaining the clinical cases in which the administration of this acid has appeared to be the direct agent in acidifying an alkaline state of the renal secretion.

HYDROCHLORIC ACID HCl.

Applying the same line of argument in the study of the possible actions of the hydrochloric acid as was done with the nitro-hydrochloric acid, we find that a very much less complex problem confronts the investigator.

ACTION IN THE STOMACH.

The hydrochloric acid, while in the stomach, does not of necessity enter any chemical combinations, but is simply employed in the process of transmuting the alkali-albumin into the acid form, that is, syntonin; thus placing the proteid compounds in such a condition that the

peptic ferment can act upon them, converting them into albumoses and finally into a diffusible peptone. In this manner it directly aids the digestive process going on in the stomach. This acid is only indicated for this purpose when for any reason the stomach cannot supply, by natural process, the requisite amount of hydrochloric acid.

After the acid has served its purpose in the stomach, it passes over with the food pabulum into the intestine and then attacks the normal sodium phosphate, the resulting products being a molecule of hydrogen di-sodium phosphate and a molecule of sodium chloride; thus: $\text{HCl} + \text{Na}_3(\text{PO}_4) = \text{NaCl} + \text{Na}_2\text{H}(\text{PO}_4)$. By this chemical transformation there is a gain of a molecule each, of chloride of sodium and of the phosphate, both of which are essential to the perfection of the assimilative processes.

PHYSIOLOGICAL ACTION.

Physiologically then, by the internal administration of the hydrochloric acid, the system has been spared the necessity of producing sulphuric acid through the oxidation of the proteid molecule, also the discharge of this acid compound by the surface layer of the gastric mucous membrane, and then the formation of the hydrochloric acid by the action of the sulphuric acid upon the sodium chloride,—as described before in the process by which nature manufactures HCl. (*)

In so far as this burden of manufacture has been removed from the system, a therapeutic gain has been made, provided this particular function was below the normal standard.

But nothing new is developed in or added to the system—aside from the actual introduction of the specific amount of acid taken—until the intestine is reached; and then the gain is small.

ACTIONS COMPARED.

Comparing the action of the nitro-hydrochloric with that of the hydrochloric acid, as described, it is at once apparent that both acids save the system the necessity of producing

HCl by the natural process. The necessary hydrochloric acid required for the gastric digestion is artificially supplied,—in one instance directly, in the other by the decomposition of sodium chloride. By either acid, if there is a deficient supply of HCl in the gastric secretion, digestion of the proteids in the stomach is augmented. So far the physiological action of the two acids is alike. But for each molecule of the nitro-hydrochloric acid ingested, four of hydrochloric acid are produced and one molecule of sodium nitrate is gained. This fact makes the nitro-hydrochloric acid four times as active in its power to transmute albumin into syntonin, as compared with the simple hydrochloric acid, molecule for molecule.

When the intestinal canal is reached, *four* molecules of sodium chloride are gained by using the nitro-hydrochloric acid, to *one* for the plain hydrochloric acid. There is also *four* times as much hydrogen di-sodium phosphate made by using the nitro-hydrochloric acid. All of which clearly explains the greater digestive power contained in the nitro-hydrochloric acid as compared with hydrochloric acid. These facts also indicate the reason for the pronounced action of the nitro-hydrochloric acid upon the liver, while the hydrochloric acid has little or no appreciable influence upon the hepatic secretion.

NITRIC ACID

HNO_3 .

Nitric acid stands midway, as it were, in its activity between the two former acids. It is claimed by some that HNO_3 has equally as good a digestive effect as the nitro-hydrochloric acid. This latter assumption, however, does not hold true when we investigate closely the composition and comparative actions of the two compounds from a plain chemico-physiological standard. Nor are the general effects of nitric acid as good as are obtained by using the aqua regia;—which statement is fully sustained by carefully tested clinical observation.

ACTION IN THE STOMACH.

In the stomach the same *sort* of economy

(*) PORTER: "The Formation of the Digestive Acids," MERCK'S BULLETIN, April, 1892.

of physiological activity on the part of that organ, as was obtained when using the two former acids, is effected by the use of nitric acid.

The action of the nitric acid is not direct, but indirect,—just as with nitro-hydrochloric acid. The HNO_3 attacks the sodium chloride, with the formation of hydrochloric acid and sodium nitrate. Thus, $\text{HNO}_3 + \text{NaCl} = \text{HCl} + \text{NaNO}_3$. Hence, molecule for molecule, the nitric acid is just as good to assist in the gastric digestion as hydrochloric acid, but only one-fourth as active as the aqua regia.

With the nitric acid, as with the nitro-hydrochloric acid, there is produced one molecule of sodium nitrate, which does not occur when using the HCl .

ACTION IN THE INTESTINE.

When the intestine is reached, the result obtained with the nitric acid is identically the same as is developed with hydrochloric acid, viz.: $\text{HCl} + \text{Na}_3(\text{PO}_4) = \text{NaCl} + \text{Na}_2\text{H}(\text{PO}_4)$. From the nitric acid we gain, however, additionally, the element of sodium nitrate, which is absorbed by the entero-hepatic circulation, and which, when it reaches the hepatic cells, acts in the same manner as the sodium nitrate formed from the use of the aqua regia.

This element of sodium nitrate, as already described, in a measure influences the liver and acts as a hepatic stimulant. This explains the decided benefit brought by the nitric acid when the hepatic functions are impaired.

The general influence, however, of the nitric acid upon digestive endosmosis, assimilation, and oxidation is not nearly so great as obtains with the internal administration of the nitro-hydrochloric acid. Consequently the therapeutic value of nitric acid cannot be so great as that of the aqua regia, although it is greater than that of the plain hydrochloric acid; all of which is in keeping with repeated clinical observations.

SULPHURIC ACID



Sulphuric acid can be used for the same purposes as the acids already mentioned, in

economizing the function of the stomach, by sparing it the necessity of forming all its hydrochloric acid through the agency of proteid katabolism. The administration of sulphuric acid is following more closely the law of the natural formation of the hydrochloric acid through the immediate agency of H_2SO_4 ; thus, $\text{H}_2\text{SO}_4 + 2\text{NaCl} = 2\text{HCl} + \text{Na}_2\text{SO}_4$. In using this acid, nothing new has been added to what ordinarily occurs when sulphuric and consequently hydrochloric acid are normally produced by proteid katabolism and the action of the former on the sodium chloride.

When there is suboxidation of the proteid compounds, and consequently a defective production of hydrochloric acid, sulphuric acid can often be administered to advantage; but improvement must of necessity be slowly effected, because new elements have not been added or produced by the chemical reactions developed through the agency of the sulphuric acid over and above the normal condition.

The large gain in hydrochloric acid and the production of sodium nitrate, the actual increase in sodium chloride and the rapid production of the hydrogen di-sodium phosphate, which were obtained when using nitro-hydrochloric acid, are all wanting with the H_2SO_4 .

PHOSPHORIC ACID



The only other form of mineral acid in common medicinal use is the dilute orthophosphoric acid. This acid can be made to produce hydrochloric acid in the stomach, by decomposing the sodium chloride, as has been described with the other acids. Theoretically, we should have this reaction: $\text{H}_3(\text{PO}_4) + 3\text{NaCl} = 3\text{HCl} + \text{Na}_3(\text{PO}_4)$. But the production of the normal sodium phosphate would be attacked by one of the three new molecules of the HCl ; so that the total gain in the stomach is represented only by two molecules of HCl and one of Na_2HPO_4 .

Still, even thus, the HCl -producing power of phosphoric acid, so far as molecular quantity is concerned, is equal to that of sulphuric acid, and second only to that of nitro-hydrochloric

acid; but by phosphoric acid *no new salt*, promoting the metabolic changes in the body, is formed as is done by the sulphuric, nitric, and nitro-hydrochloric acids.

STOMACH AND INTESTINAL ACTIONS.

The above transformation being effected in the stomach, the natural method of forming the gastric acid is thus supplanted by the artificial process which spares the functional powers of the stomach; and digestion, so far as the acid supply is concerned, is decidedly improved. When the intestine is reached, the two gained hydrochloric-acid elements attack the normal phosphate there extant, with the following result: $2\text{HCl} + 2\text{Na}_3(\text{PO}_4) = 2\text{NaCl} + 2\text{Na}_2\text{H}(\text{PO}_4)$.

By this chemical transformation we restore the chloride of sodium and enhance the amount of hydrogen-di-sodium phosphate; without, however, supplying any sodium nitrate or sulphate.

Clinically, it is often found that the phosphoric acid is less irritating in its direct action upon the stomach than any of the other four, and yet it seems to influence digestion favorably. Therefore, where the other mineral acids disagree with the stomach, and there is positive need of such a compound, the phosphoric acid can often be used to great advantage when all other agents have failed.

SUCCINCT COMPARISON.

In tabular form, the comparative differences between the various reactions, consequent upon the ingestion of these different acids, are at once apparent:

ACID USED.	REACTIONS.
Nitro-hydrochloric	$(2\text{H}_2\text{O} + \text{NOCl} + \text{Cl}_2) + \text{NaCl} = 4\text{HCl} + \text{NaNO}_3$ (a)
	$4\text{HCl} + 4\text{Na}_3\text{PO}_4 = 4\text{NaCl} + 4\text{Na}_2\text{HPO}_4$ (b)
Hydrochloric.	$(\text{HCl}) + \text{Na}_3\text{PO}_4 = \text{NaCl} + \text{Na}_2\text{HPO}_4$ (b)
Nitric	$(\text{HNO}_3) + \text{NaCl} = \text{HCl} + \text{NaNO}_3$ (a)
	$\text{HCl} + \text{Na}_3\text{PO}_4 = \text{NaCl} + \text{Na}_2\text{HPO}_4$ (b)
Sulphuric	$(\text{H}_2\text{SO}_4) + 2\text{NaCl} = 2\text{HCl} + \text{Na}_2\text{SO}_4$ (a)
	$2\text{HCl} + 2\text{Na}_3\text{PO}_4 = 2\text{NaCl} + 2\text{Na}_2\text{HPO}_4$ (b)
Phosphoric	$(\text{H}_3\text{PO}_4) + 2\text{NaCl} = 2\text{HCl} + \text{Na}_2\text{HPO}_4$ (a)
	$2\text{HCl} + 2\text{Na}_3\text{PO}_4 = 2\text{NaCl} + 2\text{Na}_2\text{HPO}_4$ (b)

chloric acid, there is a reaction in the intestine *only*.

A TENABLE CLAIM.

A fact which, however, must not be lost-sight-of, is, that there is no guarantee that such an absolute selective action is followed by each molecule of acid and salt in the alimentary tract. Many molecules are unquestionably diverted by other salts and acids. But this is the claim here made: that *whatever good is derived* from the use of these mineral acids is the result of the chemical changes above formulated. The more the acids are diverted from these specific actions, the less marked will their effectiveness be, in restoring the system to a normal state.

With this knowledge at our command, we can, by selecting a diet composed largely of proteids and fats and such compounds as will be *least likely to divert* the action of the mineral acids from the channels here outlined, procure a more rapid and perfect recovery of the patients treated.

NO MERE SPECULATIVE THEORY.

In reply to this line of argument and chain of evidence the criticism might be made, that all this is simply a written theory. But, as clinical facts are taken for the foundation, and as the whole of the above chemical descriptions is simply an explanation of the results that are daily obtained by the internal administration of these acids, *the opposite* is justly claimed, to wit: that we have, in this discussion, detailed a series of chemical laws which fully explain the reason

In the above table, the successive reactions produced or induced by each acid, in the *stomach* and in the *intestine* respectively, have been distinguished by marking the *former* thus: (a), and the *latter* thus: (b). In the case of hydro-

for the results produced by the introduction of these acids in suitable cases which demand their aid. Empiricism is thus replaced by known and fixed rules; and uncertainty is changed to certainty.

PHARMACOLOGICAL REPORTS

TO "MERCK'S BULLETIN."

THE PARISETTE.

By H. BAILLON, M. D.

The Parisette (*Paris quadrifolia* L.), an indigenous herb in France, quite common, of the family of *Liliaceæ*, was well known in ancient medicine as a remedy and as a poison. Fallen into desuetude, it was considered as a narcotic, but not as a cardiac poison. Its use was known to provoke somnolence, dizziness, buzzing in the ears, a very pronounced precordial distress, headache, nausea, a marked feeling of weakness accompanied by general numbness, and some temporary troubles of sight.

Dr. CAZIN, some time ago, experimented with this plant on his patients, and upon himself. He saw that its first effect was a slight acceleration of the movements of the heart, followed by a diminution of their force and their number, and, finally, that the signs of its pulsation ceased to be perceptible.

Chemical analysis of the plant was made in Germany, and a glucoside was discovered called *Paridine* ($C_{32}H_{56}O_{14}$), decomposable, by alcohol and hot hydrochloric acid, into *Paridol* and glucose. WALZ discovered in it another glucoside, *Paristypine* ($C_{38}H_{64}O_{18}$), which so far has hardly been tried in medicine.

F. HEIM, doctor of the FACULTY OF PARIS, has of late again taken up the entire botanical, physiological, and chemical study of this plant, together with observations on plants of the same genus, notably on the various kinds of American TRILLIUM, which is certainly no other than the PARIS with trimerous flowers. He has convinced himself that, besides glucosides, the extracts of the PARIS QUADRIFOLIA contain one or more alkaloids. On evaporating an alcoholic extract and treating the residue with sulphuric or hydrochloric acid, he obtained a solution which furnished precipitates by ordinary alkaloid-reagents, especially by the reagents of BOUCHARDAT and of WALSER.

(Prof. GAUTIER has here indicated a method

which permits of the extraction of both the glucosides and the alkaloids at once. He exhausts the dry plant with boiling alcohol of 60° gravity, to which a little oxalic acid has been added; after filtering the alcoholic solution, he distils it, and then takes up the residue by means of lukewarm water. After precipitation by neutral acetate of lead, and filtration, he has a liquid which contains the alkaloids, and a plumbic precipitate which contains the glucosides. Ether dissolves the alkaloids, from which hydrochlorates are then formed. It remains to be seen what are the exact characteristics of these alkaloids, which were so far ascertained with but insufficient precision.)

Having proceeded so far, Dr. HEIM made experiments with an aqueous extract of the leaves, rhizomes, and fruit. He saw this extract act on the sensibility, the motility, the respiration, and the heart of animals. Sensibility is diminished. The animal under treatment does not react under the most painful of mechanical cutaneous excitations, such as a large incision of the skin. It is the tactile corpuscles of the skin which are anæsthetized, and in this respect the action is analogous to that of cocaine. Nevertheless there is not, with the Parisette, as in the case of cocaine, anæsthesia of the cornea.

When sensibility to heat has disappeared, after that to pressure, electric excitation still gives results; and chemical caustics act still later.

The muscular and tendinous corpuscles of sensation are anæsthetized after those of the skin; then the medullary centres are affected. Reflex power gradually diminishes; and the author here raises the question whether the Parisette acts on the conductors of reflex sensibility, or on the reflex centres themselves. Experiment leads him to reject the first hypothesis; he only admits of action on the medullary centres.

He hereupon compares the action of Parisetto to that of the alkaline bromides, employed

in toxic doses. The bromides first produce a slight excitation of the medullary centres. It is the same with Parisette. The exaggeration of tendinous reflex action presages initial contractions, conformably to the doctrine of Prof. CHARCOT, that contraction and tendinous reflex action are concomitant phenomena, subject to the same physiological interpretation. Tendinous reflex action appears as a prodrome of contraction, persists during contraction, and remains after the latter has disappeared. Here we note progressive encroachment on the medullary centres, starting from the lower part of the body; then the effects of the poison are felt in the higher centres.

Similarly to what has been described above, the action of the heart is first accelerated, then retarded.

During the period of hyper-excitability of the medulla, the pupil dilates; during the period of depression, it contracts.

Parisette is a modifying agent toward the reflex medullary power; and, consequently, Dr. HEIM compares it to narcotine, nicotine, strychnine, the ammonias, the leucomaines, uræmic products, etc.

The final action of Parisette is *a diminution of excito-motor power*, which action is localized entirely in the anterior processes of the medulla.

Parisette acts on the respiratory centres as on motor-centres in general; it first excites them, then depresses them. At the start, it creates a necessity of active respiration; just as the action of the heart is first accelerated, while later-on the number of its beats slowly diminishes. The action is similar in the lymphatic hearts of frogs.

It is known that Parisette has been commended to especial favor as an emetic; but an injection of it does not cause dogs to vomit, no matter in what dose the poison is employed. Thus, the drug does not act directly on the reflex centres of vomiting. If, on the other hand, it is injected directly into the stomach by means of a tube, without contact with the pharyngeal mucous membrane, neither nausea nor vomiting take place. It is, then, *not a true*

vomitive, like tartar-emetic; it is merely a nauseative drug, like ipecac.

The alkaloids of Parisette are absorbed by the intestines; but, on its passage through the stomach, its glucosides are decomposed and their action becomes null. This is to be noted, in case the drug is to be administered to man through the stomach.

Parisette has its effects on the muscles. It enfeebles the contraction thereof, but does not wholly suppress it. There is, thus, an action somewhat approaching that of curare.

From its action on the pupil, Parisette would seem to be, like the calabar bean, an antagonist to belladonna. It appears to take a gradual effect on the nervous motor-centres of the iris.

—In fine, then, Parisette is not a general poison, killing all the anatomical elements; but, contrary to the mineral poisons, it localizes itself on one anatomical element: the nerve-cell.

Prof. CHARLES RICHTER thinks that, in many respects, the action of Parisette may be compared to that of aconite. We would then seem to have among our Northern flora a succedaneum of aconitum napellus; which fact is not without interest to therapeutics.

The leaves are the least active parts of the plant. The rhizome is more active in autumn than at any other season. The fruit should be used when fully matured, that is, in autumn. The seed does not seem to be active.

The Parisette has, in addition to the above, been lauded as an antidote, an anti-spasmodic, an evacuant (emetic and purgative), a cardiac, a vermifuge, an aphrodisiac, and even as an—anti-rabic! But *what* has not yet been lauded as an anti-rabic?

THYMOL, according to Prof. BERRENS, yields a good antiseptic solution for sponges—1 part dissolved in alcohol, to 1000 parts of water.

CHLORAL HYDRATE (11 grains to 3 fluid ounces of water) has been used topically with excellent results by Dr. MITROPOLSKY in *cracked nipples*.

MEDICINE ABROAD;

AS REPORTED BY OUR FOREIGN STAFF.

European Editor: H. BAILLON, M.D.,

Professor in the "Faculté de Médecine de Paris"; President of the "Société Linnéenne de Paris"; formerly Professor of Hygiene at the "École Centrale des Arts et Manufactures"; etc., etc.

PUNCTURE OF THE THORAX (Thoracentesis).

DISCUSSED AT THE ACADEMY OF MEDICINE
IN PARIS.

{ Merck's Bulletin Office, 12 Rue Cuvier,
Paris, April 10, 1892.

A PROFESSIONAL TILT

was recently enacted at the Paris ACADEMY OF MEDICINE (Session of March 29) respecting the operation of Thoracentesis—one of those questions which, like so many others mooted in our day, afford a curious instance of the antagonistic views of the Old and the New medical schools. Or, perhaps, we may with more precision call it a struggle between the representatives of Surgery and of Medicine,—each side bent on vindicating its exclusive right to operate on empyemas. Prof. A. VERNEUIL, the supporter of the claims of surgery, took occasion to blame the present tendency to practice thoracentesis in cases of sero-fibrinous pleuritis. His accusation was plain enough. He affirmed that this operation, especially when repeated, very often gives rise to a

DEGENERATION OF THE PRIMITIVE SEROUS EFFUSION

into a purulent one.

Such a declaration is certainly surprising, and Prof. VERNEUIL will no doubt be accused, by some of our younger physicians, of putting forth reactionary views. At any rate he does not seem to have sufficiently proved his position,—that even in cases where due attention has been paid to the cleanliness of the instruments, we are nevertheless liable to transform, by puncture, a serous effusion into a purulent one. This would hardly be logical. It is, therefore, only by means of very exact observations that conclusive proof can be brought to demonstrate the general liability to such transformation.

It is easy to understand that

PROFESSOR DIEULAFOY

felt some pique at the strictures passed upon

thoracentesis. He defended the utility and harmlessness of the operation, basing his judgment on an aggregate of fully 380 observations; and he affirmed, apparently with good reason, that thoracentesis, when properly performed, never causes a sero-fibrinous or sanguineous effusion to change into a purulent one.

The fact adduced by Prof. VERNEUIL is nevertheless unquestionable. A pleuritic effusion consisting of a clear fluid at the first puncture may become turbid at the second, and decidedly purulent at the third puncture. But *is the transformation really due to the punctures?* That is the crucial point which stands in need of demonstration and not simply of assertion. There we have, evidently, the weak side of VERNEUIL's contention.

No, rejoins Prof. DIEULAFOY (Session of April 5), the thoracentesis cannot be the cause of

A TRANSFORMATION WHICH, IN FACT, HAS NOT
TAKEN PLACE.

If, at the first puncture, you thought you were dealing with a sero-fibrinous fluid of a benign nature, that comes simply from a deficiency in your observation. If this fluid be carefully examined with the microscope, it will be found from the very first rich in red globules, or in schizophytes symptomatic of suppuration; and the conclusion drawn from a thorough observation will be, not that a simple pleurisy has been transformed into a purulent one, but that the punctures took place at different successive stages of evolution of a pleurisy which necessarily was destined to become purulent.

ARE WE THEN DOOMED TO LOSE THE FRUITS
OF REAL PROGRESS

attained in the latter years? Is there, or is there not, any danger in leaving in the pleural cavity a quantity of fluid amounting to nearly two litres? Is life endangered in that case, and

is not death apt to ensue rapidly and even suddenly from such an effusion? If the answer is affirmative, as, unfortunately, has often been the case, the physician must step in, even though he should not be a professional surgeon. The operation is not difficult, and can be performed by any physician without risk. The question is not one of skill: the point is simply, *not to infect the wound* produced in the thoracic wall, by one's own hands or by the instruments used.

A RATHER WEAK ARGUMENT

against this operation is that based on the "operative skill" of DIEULAFOY and on his "knowledge of the seasonable moment when intervention should take place," in order to explain his success with thoracic puncture. After having seen him practice the operation, any physician will be able to do the same. The misfortune is, that, from ignorance or negligence, many operators do not make sufficient use of antiseptics. Not long ago a celebrated practitioner struck up a pæan in praise of the doctrines now in vogue, after he had performed puncture with a very ingenious and complicated—but needlessly complicated—instrument, without any consequent accident, because, as he fancied, this instrument had enabled him to

"PRECLUDE THE INTRODUCTION OF AIR"

into the pleural cavity. He certainly ought to have known that, since the day of REYBARD and so many others, the endeavor of practitioners, in empyema, has always been to prevent access of air to the pleura. What was neglected, however, was the use of suitable antiseptics and the touching of the wound only with perfectly clean fingers. But, of course, the air is to be the ubiquitous *bête noire*! There are still a few eminent surgeons who speak of a certain "bad air" as capable of killing their patients.

DIEULAFOY has thus had but little difficulty in picking a flaw in the doctrine of VERNEUIL; but he will no doubt find it more difficult to stand the opposition of

PROFESSOR HARDY.

This distinguished physician is a practitioner of widest experience, and meets facts with facts.

HARDY thinks it a curious fact that so few thoracic punctures were formerly practiced, and that to-day there is not a hospital in Paris where recourse is not had every month to this operation. He referred to NÉLATON who, at the age of sixty years, had never performed any thoracentesis before he practiced it on DOLBEAU. What HARDY repudiates, is thoracentesis applied to the commonplace treatment of pleurisy. To him—and here he seems to go too far—it is the dyspnœa and the imminent suffocation which impart such gravity to pleurisy in certain cases; and the imminent suffocation itself is a consequence of the considerable quantity of fluid effused. Just as though the abundance of the effusion could explain so great a number of cases of rapid death, where the fluid in the pleura amounted only to a couple of litres! DIEULAFOY was very explicit; he cited facts observed by creditable physicians: death may ensue from causes that we cannot fully ascertain, and it may come on rapidly and even suddenly from a pleural effusion which has caused only slight or even insignificant dyspnœa. He summed up his doctrine in this phrase: "The dyspnœa is an illusive indication and a deceptive guide;" and whether there be dyspnœa or not, he holds that

THE FLUID SHOULD BE EVACUATED

as soon as it approaches the quantity of two litres. We may therefore hope that practicing physicians in the New World will not hesitate to accustom themselves to puncture the pleura, and to puncture it under appropriate antiseptic conditions. As a general rule, they will not be confronted by failure; and it will not do for them to count upon the curative power of nature in order to heal pleural effusions; for—without knowing exactly why—we no longer live in a time when it was thought no one dies from pleurisy.

At this point, however, we are likely to relapse into the vague and the uncertain. It is said that the "*medical constitution*" of man has changed, and some speak even of a "microbic constitution." It is curious to note that in France there still are at the present day some

gifted men who, after having given undoubted evidence of thorough scientific knowledge, yet fall back upon the hypotheses of "miasmas," "constitutions," and "tendencies." When a

SUDDEN DEATH

occurs in a case of pleurisy,—whether with or without puncture,—there is a proximate or remote cause—a cause that resides in the heart or in the large vessels. But the operation of thoracentesis, if it has been practiced, has nothing to do with the matter. There is probably no more harm done by it than there was good done by the blisters which were still applied, not very many years ago, to the thorax in cases of pleural effusion, and which many physicians of to-day consider dangerous.

April 12.

The ACADEMY OF MEDICINE was to-day the scene of a remarkable conversion, which was bound to take place sooner or later. Prof. VERNEUIL, who in a previous session had censured what he thought fit to call

THE ABUSE OF THORACENTESIS,

expressed his later views in very nearly the following words: "For my part, I no longer hesitate to practice and recommend this operation in most cases, because, if effected according to certain rules, it will not be attended with any accidents." As it is known that the question had originally been mooted by Prof. VERNEUIL, there is some curiosity about his reasons for this; for he is generally recognized as a man of progress. On the other hand, Prof. HARDY can hardly be said to have been converted; for he continues to declare that thoracentesis, even when effected according to certain rules and in well-ascertained cases, may provoke purulence of the effusion. As is known, the personal opinion of HARDY is, that death ensues more often from pleurisy at the present time than in the past. This point would have to be proved by good statistical data. Prof. DIEULAFOY, for instance, thinks, on the contrary, that death from pleurisy is a great exception now, as in the past. He seems, therefore, to have given up his views about "changes in the medical constitution;" and in this he has probably done

well. Such vague theories comport poorly with the very precise data he has given on the indications of thoracentesis. Whether one adopts his method of treatment or not, we are very glad to see him return to principles in accordance with modern science by his declaration (of which no doubt many practitioners will avail themselves to advantage) that,

TO GUARD AGAINST ACCIDENTS,

the secret consists merely in making use of a trocar or needle of fine calibre and in extracting *only a litre* of the fluid from the pleura at a single operation, even if the quantity present should be more considerable. By proceeding in this manner, only a gradual expansion of the constrained lung is allowed; no cough, no painful sensation of suffocation is occasioned, and there is even a possibility that the portion of the fluid which has not been extracted will be spontaneously absorbed after a single puncture. One can, moreover, recommence to evacuate the fluid on the next day, or—if the case so require—on several successive days.

DIEULAFOY recommends such treatment whether there is fever or not, dyspnœa or not, and irrespective of the period elapsed since the first appearance of the malady. He has established by figures that

PLEURISY ON THE LEFT SIDE IS NOT MORE SERIOUS THAN THAT ON THE RIGHT, and perhaps less so; and that the latter was more frequent among about forty observations.

The accidents imputed to puncture of the thorax are, besides the purulence of the fluid: œdema and congestion of the lungs, albuminous expectoration, rapid or slow asphyxia, syncope that sometimes end fatally. But is it in good reason to assume that all these accidents are attributable to the operation? This sequence ought to be established by positive evidence before being promulgated.

It is quite natural to ask, by what means it can be ascertained that the pleura contains a quantity of fluid of about two litres. DIEULAFOY denies that any great diagnostic value pertains to the "classical" signs: murmur, ægophony, Baccelli's sign (*i. e.*, aphonic pectoriloquy).

THE DIAGNOSIS,

according to him, should be based on the cessation of the thoracic vibrations, the specific nature of the dulness, the displacement of the organs. If there be dulness of sound and cessation of the vibrations as far backwards as the spine of the scapula, with diminished resonance in the subclavicular region; if the sound-maximum of the cardiac systole be at the right margin of the sternum or still farther to the right,—in case of a left-side pleurisy,—then one may be sure that the effusion reaches two litres, or very nearly so; and in that case thoracentesis should be effected. On the right side, the signs relating to the dulness of sound and the absence of vibrations are the same; but it is necessary to determine the place of the liver; for the effusion must have attained nearly two litres when the edge of the liver is pushed down beyond the short ribs. In that case, likewise, the puncture should be made.

Pleurisies are probably more prevalent now than formerly; because such affections are associated with pneumonia and grippe, as is the case in

THE EPIDEMICS AT PRESENT RAGING.

It is not surprising, therefore, that the number of fatal terminations also has increased. But to impute this increase to thoracentesis, is stretching matters altogether too far.

There is a member of the ACADEMY who has declared that, unless compelled by circumstances, he never would practice a puncture before the twentieth day of the disease. If the effusion is abundant, the patient will thus have a chance of dying during one of the nineteen preceding days. Another member always evacuates all the fluid at once, except that he arrests the evacuations when the patient begins coughing. He forgot to tell us how many of his patients have died without coughing. DIEULAFOY made the pertinent remark hereto, that one may know well enough when a sick person begins to cough, but not always when he will stop.

We presume that the physicians of the New World will agree with us that this second conference—the one of “conversion”—did not fall

behind the former one in interest and value, and that there are now no valid reasons why recourse may not be had to puncture of the thorax as soon as the effusion has reached the limits indicated above.

April 19.

The question of thoracentesis came up to-day again at the ACADEMY OF MEDICINE, but with much less brilliancy than at the preceding meetings, and with many reiterations from them.

PROFESSOR GERMAIN SÉE

pointed out the indications, according to his idea, for the performance of thoracentesis, but with less precision than Professor DIEULAFOY had previously done. In his opinion, puncture is only necessary at the end of three weeks' time, and if the effusion remains stationary. It cannot change the sero-fibrinous liquid into a purulent one, if antiseptically done; and when pus is found on the second puncture, it is because it existed from the beginning.

PUNCTURE IS URGENT,

according to Prof. SÉE, only if extreme and persistent dyspnœa appears, with cyanosis of the face and extremities. But why did not some one reply to the speaker, that if he had evacuated the liquid as soon as it was present in too large a quantity, he would have avoided this intense dyspnœa and this cyanosis, which he takes for guides?

What is important to notice is, that he absolutely discards the use of revulsives, diuretics, sudorifics, purgatives, and antirheumatics in his treatment of pleurisy; and that he declares

AN EXPECTANT POLICY

to be the only rational method now available. It is true, that he also affirms that *pleurisy is hardly ever an essential disease*, due to cold, as was formerly believed. Why, then, is pleurisy most prevalent in winter? The truth is, that consumptives, or those who are about to become so, often have pleurisies, the cause of which is not traced. In fact, SÉE's arguments were not calculated to shake the convictions of

those who believe that thoracentesis must be performed as soon as the effusion has reached certain dimensions.

April 26.

To-day's session at the ACADEMY OF MEDICINE was one of the most interesting; for it put face to face, on the subjects of pleurisy and thoracentesis, what has come to be called

THE NEW AND THE OLD SCHOOLS of treatment. One of the most distinguished of practitioners, Professor PETER—who so far had only said a few words, when he exclaimed, a week ago, "The gravity of pleurisy has varied "because its treatment has been modified!"—took the floor to-day, in order to defend, with much force and elegance,

THE ANTIPHLOGISTIC METHOD.

He complained that, in the present era of science, the morbid condition itself was neglected in favor of dwelling on speculations regarding the pathogenic cause.

Nothing could be more interesting or instructive to the practitioner, than this discourse in which he showed, that the physician is wrong in not paying attention to the *pre-secretive* phase of pleurisy, which may last one or two days. This defence of the "*principiis obsta*" was remarkable from every point of view, as might have been expected from such a speaker. In the days of such men as ANDRAL and BOUILLAUD, he said, the mortality of pleurisy was 3 in 100; to-day it has come as high as 7 in 100 in the large hospitals of Paris. Formerly the physician hastened to combat the pleuritic fever and to check the inflammation; general bleedings were practiced, cupping was resorted to, leeches were used, and large blisters were drawn. In this way, either no serous effusion took place, or else it was of slight proportions; and the duration of the malady was remarkably shortened. Nowadays antipyrine and sulphate of quinine are prescribed, the pleural pain is combated by means of mustard plasters or injections of morphine; or, perchance, even nothing is done but waiting! What happens then? The serous effusions increase in frequency

and in abundance; they are no longer serous alone, they become purulent; the need of recourse to thoracentesis becomes more and more frequent.

Formerly, sudden death in cases of pleurisy was unknown. To-day its occurrence is attributed to the abundance of the serous effusion; and yet there are instances of sudden death without serous effusion and when there are but extensive fibroid adhesions.

The danger lies in allowing the disease to become generalized.

ACTIVE AND IMMEDIATE INTERVENTION is the thing necessary. If the case is that of an adult, robust and without previous taint, the serous effusion must be checked, in the first place, by antiphlogistic treatment.

PETER protests against the abandonment of the antiphlogistic method, in all its forms, at the outset of acute pleurisy. If the serous effusion is not very considerable, he would have it treated—in whatever condition presented—by cupping and blistering. It is only after the twentieth day, and if the effusion is very abundant, that he admits of the *possibility* of recourse to thoracentesis; and he evacuates the whole liquid in one operation, but very slowly, as TROUSSEAU did.

One thing which might have been asked of the learned professor, was some personal statistics. How many cases of pleurisy has he cured with the old method of treatment? This is what would vastly interest physicians on the other side of the Atlantic! How can one disregard DIEULAFOY'S record of 380 cases of thoracentesis *and cure without the serous effusion once becoming purulent?*

Dr. A. GUÉRIN, who admits the above record to be true, and who declares himself delighted with it, is yet, at heart, of Dr. PETER'S opinion; for he declares that, if acute pleurisy were treated by means of

BLOOD-LETTING,

—if physicians went back to LAËNNEC'S therapeutics and that of his followers, they would have less occasion for thoracentesis. The speaker has his theory of the inflammation

of the serous membranes. He defines it as "the invasion of the elements of the blood into the lymphatic domain." But this is immaterial to the practitioner, at present. What *he* wants to know is, whether it is really true, as Dr. A. GUÉRIN thinks, that, especially in the country, physicians, after first having adopted the new doctrine which advocates the use of antiseptics, have afterwards openly come back to the anti-phlogistic treatment. Let us, however, admit that this does not settle the question of thoracentesis. What can this antiseptis really be, which is supposed to have been abandoned? And how, moreover, can the pleural surface be acted-upon when intact?

It must be admitted that

INTERNAL ANTISEPTIS

is often a "delusion and a snare." This should be known at the ACADEMY of Paris, if it were not that all that originates *from a certain school* is accepted at first sight as absolutely demonstrated!

We have said it again and again that French medicine is at present in

A STATE OF CRISIS

which may have its dangers.—You may have an abundant pleural effusion displacing your internal organs. Doubtless it would have been well to check its development, if possible; but, unfortunately, this has been left undone. A practitioner, well above the ordinary run, appears, whose good faith cannot be questioned. He tells you that, in similar cases, he has performed thoracentesis three hundred and eighty times; that it has occasioned no accidents; that the serous effusion has never become purulent; and that, if the operation is not performed, you are in danger of death. What decision would you take? And what can be the value, in such a case, of a discussion on microbism? This reminds one of the dictum of one of the old authors: "*Heal me first, O doctor!*"

May 3.

At the ACADEMY OF MEDICINE, the discussion on pleurisy is drawing to a close. Some of the speakers, such as DUJARDIN-BEAUMETZ,

combat the opinion of PETER; others, as LANCEREAUX, are eclectic and distinguish from other pleurisies the species *a frigore*, which the latter calls "pleuritic fever," and which he finds of clearly defined form and always the same.

Recovery is the rule in this kind of pleurisy; it kills only very rarely—death, when it occurs, being due to mechanical causes. It should be noted that the speaker often used, when it was necessary to operate,

REYBARD'S CANULA

with the greatest success; for, in 60 thoracenteses, he has never seen the effusion become transformed into pus; while with the aspirators he has been much less fortunate, and has observed the purulent transformation on several occasions. This is because his Reybard's apparatus was aseptically clean; and those who recommend more complicated apparatuses would do well to reflect on this fact.

DIEULAFOY justly finds that the discussion has gone astray, and that too much has been said of pleurisy, and too little of its treatment by means of thoracentesis. He does *not* admit, with G. SÉE, that pleurisy is a *cyclic* disease. He calls attention to

THE EXTREME IRREGULARITY

of the turns of this affection, where everything is unforeseen: the succession of the symptoms, the course of the temperature, the moment of defervescence, the time at which the effusion commences, and when it is absorbed. The fever and dyspnoea are of little import to him; he wants to base the expediency of thoracentesis *solely* on the *quantity* of liquid effused, as before reported. (See our Letter of April 10.)

At this point, when DIEULAFOY had so clearly re-stated his principles regarding thoracentesis, Dr. LYON referred with no less emphasis to "*Médecine Pratique*,"

THE OPERATIVE MANUAL

with which all practitioners are obliged to comply. This code of rules enjoins upon them, never to neglect the *exploratory puncture* which reveals the presence of the effusion, and which, if practiced with an aseptic needle, is innocuous and causes but insignificant pain. When the

presence of liquid has been confirmed, Dieulafoy's or Potain's *aspirator* should be resorted-to; the author prefers the latter, because with it only blunt trocars are used.

THE OPERATOR,

in this method, washes his hands in a 1:1000 solution of corrosive sublimate; he boils his needle or trocar in a tube containing carbolized water, and then throws it into a vessel of carbolized water. The place to be punctured is washed with soap and a sublimate solution. The puncture having been made at a suitable point—which varies according to the case, but is always close to the upper margin of a rib, where there is no artery to be wounded—the aspiration is proceeded-with *slowly*, the cock of the apparatus being only partly opened; and, when the effusion is abundant, the flow should even be interrupted from time to time, at short intervals, so as to permit the lung to unfold itself progressively.

AS SOON AS THE PATIENT COUGHS, —this is important,—the aspiration must be stopped; *nor must more than a litre be drawn at a sitting* (as demanded by DIEULAFOY likewise; see our Letter of April 12); if more liquid remains after drawing one litre, the operation is to be interrupted, to be resumed the next day. Although this rule has been assailed (the author of the Manual observes), it will be well to note that the accidents reported in the period when thoracentesis first began to become popular, are traceable to the evacuation of *too much liquid at one sitting*. When the indicated precautions are taken, "*accidents never happen*" (in simple pleurisies). Where accidents do occur, it is almost exclusively in complicated pleurisies. The author of the Manual furthermore is equally positive with DIEULAFOY himself, that any purulent transformation of the effusion can never be imputed to this operation as such, but solely to the omission of the proper antiseptic precautions.

—All this, no doubt, is not absolutely *new*; but, nevertheless, it cannot too often be repeated to inexperienced or timid practitioners,—here or elsewhere.

ACADEMY ECHOES.

PARIS, Session of April 19, 1892.

Dr. J. BOECKEL announced that he had performed an operation on a young man for congenital hernia, and that the tumor was found to contain *a uterus and a fallopian tube*.

Professor PROUST read a report on the Grippe of 1889-1890, and recalled the fact that the disease presented itself in three different forms: nervous, pulmonary, and gastric. It was contagious. It had been wrongly compared with the Dengue fever. Microbes had certainly been found in grippe; but—where are they not found? But none of them can be considered with certainty as actual pathogenic agent of the malady. The speaker asserted that one of the best preventive means to be employed against the disease, consists in the methodical and regular cleansing of the mouth, nasal cavities, and pharynx, with aromatized antiseptic solutions.

Dr. LANCEREAUX believes in the influence of atmospheric currents and meteorological disturbances upon the transmission of the grippe. —Always the same tendency, it will be seen,—to blame the air for everything! Where, however, are the proofs for all these hypotheses?

WISDOM OF THE AUTHORS:

ABSTRACTED FROM RECENT MEDICAL WORKS.

* * *

CONTRIBUTIONS ON THE STUDY OF NEURASTHENIA.—Dr. A. CLAUSSE.

The author has written upon this malady because he has himself long suffered with it. According to his ideas, it is the disease of the century; however, he believes that it has already been described by HIPPOCRATES, and thinks that since GALENUS it has been confounded under the name of Hypochondria. He mentions, as synonyms by which it has been described:

Nervous Erethism of DUPAN (1819);
Neuropathy of DOUGENS (1825);
Neurospasma of BRACHET (1832);
Proteiform Neurosis of CERISE (1842);
Nervous Weakness of MONNERET (1857);
Nervous Cachexia of FODRAS (1859);

Acute and Chronic Neurosis of BOUCHUT (1860);

Cerebro-cardiac Neuropathy of KRISHUBER (1873).

It is *to-day* the disease of BEARD, whose ideas on the morbid entity and the unity of neurasthenia many physicians have adopted.

ARNDT considers neurasthenia as a symptom, a symptomatic complexus of morbid processes of definite indispositions.

GLÉNARD (in 1885) gave a pathogenic explanation of most of the cases of gastric neurasthenia.

The author confesses that it is assuredly a poorly defined disease, and declares that the expressions "nervous exhaustion" and "diminution of nervous force" have but a very vague signification. It is true that our knowledge of the inner nature of nervous phenomena and of the functions of the nerve-cells is so rudimentary, that it is impossible to be very exact in the matter. Nor is there any pathological anatomy known which covers the subject. In order, therefore, to recognize the autonomy of neurasthenia, all that would be necessary is a somewhat precise symptomatology, and pretty constant and defined characters. And yet two cases of this malady may not have, so to speak, any common characteristic. Can neurasthenia then be but a collection of morbid conditions, a "disease by concatenation?"

Fear, sorrow and mental cares, which are its most frequent causes, are always followed by a more or less transient condition of nervous depression. If this lasts only for a few days, or a few hours, we have but the "image of a neurasthenic state" (BOUVERET). But, then, "we are all neurasthenics" (DEBOVE); and it is well known that ARNDT finds neurasthenia in all great men and celebrated personages. Hence, those who admit the morbid entity of the affection, must also admit an indefinite number of clinical forms.

The author looks to *biological chemistry* for the solution of the problem, considering that the neurasthenic states—disturbances in the action of the nerve-centres—are due to imperfect nu-

trition of the nerve-elements, resulting from vasomotor troubles, or from auto-intoxication by the ptomaines or other products of disassimilation. Thus, the symptoms of Bright's disease, minus the urine alterations, would then obtain:—digestive troubles, headache, dyspnœa, palpitations, cramps, cryæsthesia, electric shock, numbness of the fingers, polyuria, disturbances of the eyesight, etc., etc.,—without albuminuria.

The important point is, to see what the author, a doctor and a neurasthenic subject himself, thinks of the treatment of this disease. He resumes it under two principal indications. One relates to the psychic condition:—influence and authority of the physician, suggestion, isolation if necessary, distractions, etc. The other relates to the nutrition of the nerve-centres. Drugs play only a secondary part; we must resort chiefly to hydrotherapy, electrotherapy, massage, muscular exercise, dietetics, and intensive alimentation. The author recommends lean meat,—chopped fine, boiled until the juices of the meat are coagulated, then strained, dried and pulverized. This powder is agreeable to the taste, and can be mixed with milk, bouillon, or sweet or aromatic liquids; it is very easy of digestion. However, this article of diet must not be used exclusively; such others must be added as may be tolerated by the stomach: for an exclusive diet easily leads to denutrition; which fact is conclusively proven in the treatment of obesity; where, on the most different systems, the fashionable "curers" arrive at the same result: emaciation of their patients.

The conclusion is, that neurasthenia is ill-defined, indefinitely bounded; and that diverse affections are confounded under this name; that the signs of neurasthenia are either too significant or too inconstant to characterize a disease; that neurasthenia does not exist as a morbid entity, and that there are only neurasthenic conditions presenting common symptoms; or else that neurasthenia is actually misdiagnosed for a certain number of diseases from which it ought to be distinguished.—At all events, it does not appear that the author was completely cured of his disease.

POISONING BY CORROSIVE SUBLIMATE IN LYING-IN WOMEN.—Dr. R. SEBILLOTTE.

In France, the use of Corrosive Sublimate is not only allowed but even imposed on midwives, to the exclusion of every other antiseptic. At the very moment when the *ACADÉMIE DE MÉDECINE DE PARIS* passed this resolution, two newly delivered women, at the *MATERNITÉ* of that city, presented grave phenomena of mercurial poisoning, and one of the patients died.

The author recalls the fact that it was Professor *TARNIER* who first used Corrosive Sublimate as an antiseptic at the *MATERNITÉ* in Paris (in 1881). In 1880 *DAVAINE* had strongly insisted on the microbicide properties of this salt.

In 1883 *BAR* declared that there had been no cases of poisoning by Corrosive Sublimate observed at the *MATERNITÉ*. But since then accidents have multiplied, and many authors in France, Italy, and Germany have been occupied in search of remedies for this very sort of poisoning.

In the course of the discussion which took place at the *ACADÉMIE DE MÉDECINE*, Dr. *BUDIN* proposed that midwives should use Corrosive Sublimate in the proportion of 1 to 4,000. The motion was carried. *TARNIER* had suggested a 1-to-5,000 solution.

The author says there are three media of absorption for the Corrosive Sublimate: the peritoneum, the uterus, and the vagina. He cites many accidents. In his opinion, the primiparæ are more often affected than the multiparæ, and accidents are more likely to occur when the general health of the woman is bad, when she is worn out by tedious labor or enfeebled by hæmorrhage. Sometimes the extent of the wounds and the depth of the rents open a wide door to absorption; besides, the contraction of the neck of the uterus or the tonicity of the vaginal sphincter may operate to retain and hold the dangerous solution.

While rare in normal confinements, poisoning is met-with in cases complicated with placental or membranous retention, in abortion, in endometritis, and where the fœtus is dead or

crushed. Uterine inertia exposes to great risks by the hæmorrhage it produces, by the feeble resistance it offers to the penetration of the liquid, and by the abundance of the irrigations necessary to conquer it.

Strong solutions have caused more accidents than weak ones, notwithstanding that the opposite opinion has been maintained. In the fatal cases the strength of the solution was 1 to 1,000 or over, in ten instances; 1 to 1,500 in two; and 1 to 2,000 in ten. Nearly always there had been uterine or vaginal injections; and the author thinks that in all the cases where there were no extensive lesions of the vagina, the absorption of the poison took place by the uterus, especially at the site of the insertion of the placenta. Diseased or insufficient kidneys (principally in cases of albuminuria), constipation, hot weather—which increases perspiration and proportionally diminishes urinary secretion,—impede the elimination of the Corrosive Sublimate and favor the individual predispositions to intoxication.

There are mild and severe cases of poisoning. In the latter, the disturbances observed are: profuse diarrhœa with tympanites, vomiting, intestinal changes, stomatitis, renal complications, pulmonary congestion, bronchitis, and broncho-pneumonia; later-on, circulatory disturbances, torpor, prostration, and collapse. The skin is either dry, or covered with cold and viscous perspiration; there is itching, which often precedes death; and, especially, a very peculiar and often generalized erythematous eruption. Lenticular spots also appear, which grow larger and of a deeper color at their periphery; they join together and form large blotches on the face, extremities, and trunk. The significance of this erythema is serious. It was often observed shortly before death in cases where a cure had been looked-for.

Sometimes it is the diarrhœa which appears first, sometimes the stomatitis; or both appear at the same time. In favorable cases they both disappear in a few days. However, sometimes the diarrhœa is obstinate, the stomatitis intense, and the urine scanty.

Van Swieten's solution diluted to the strength

of 1 to 2,000, or, better still, to 1 to 5,000, is preferred to any other liquid.

Corrosive Sublimate should not be used in intra-uterine injections, or at least the solution used should be but very weak—these injections to be preceded and followed by injections of milder substances. But as soon as there is any sign of intoxication, all injections of Sublimate must be stopped at once. When stomatitis is present, the mouth must be washed out with antiseptic solutions of boric acid, carbolic acid, or naphthol. Against the diarrhœa,—tea and alcoholo-aromatic drinks must be used, the intestines emptied, and laudanum injections given. The general condition must be sustained by alimentation and tonics, and the elimination of the mercury favored by every possible outlet—especially by the skin.

It must not be thought that the author, although he cites thirty cases of death, counsels the abandonment of the use of Corrosive Sublimate in obstetrics; for he believes that it is owing to this powerful antiseptic that mortality and morbidity have nearly disappeared from the French lying-in hospitals. However, he wishes to demonstrate the risks attending the use of Corrosive Sublimate: “that it must be used with science and prudence in confinements, and “that it is dangerous in inexperienced hands.”

PROPHYLACTIC AND CURATIVE TREATMENT OF PUERPERAL SEPTICÆMIA BY MEANS OF CONTINUOUS IRRIGATION.—
Dr. E. DOBROUSKINE.

According to the author, this treatment is very efficacious and of great value. It assures antiseptis of the uterine wound, constantly disinfecting it and protecting it against new infection.

As a *preventive* treatment, continuous irrigation should be employed every time the hand or an instrument has been introduced into the uterus without antiseptic precautions, and after an artificial delivery with severe hæmorrhage or intense albuminuria.

As a *curative* treatment, continuous irrigation should be resorted-to whenever a uterine injection has not influenced the temperature of the

patient or has been followed by a severe chill with considerable elevation of temperature; or whenever symptoms of infection appear within the first forty-eight hours after the delivery.

Continuous irrigation has been accused of greatly fatiguing the patients. The author has always observed the latter to complain a great deal at the start—the first night; but, with the improvement in the general condition, they became more tolerant of the treatment. Women treated a whole week with continuous irrigation bore it wonderfully well. But this therapeutic measure is so efficacious, that merely because it is fatiguing to the patient would not be a sufficient reason for its suppression.

The tube, which serves for making the irrigation, remaining in the uterus, it is not necessary to again introduce the hand; and thus much pain is avoided, and also the danger of new infection.

EXTIRPATION OF NON-SUPPURATING TUBERCULOUS GLANDS.—Dr. C. VIDAL.

The frequent progress of glandular tuberculosis towards tuberculous generalization, the complications from pression and secondary inflammation, the unsightly scars of glandular abscesses opening spontaneously;—these are the reasons for the early and prompt treatment of tuberculous adenitis. The treatment may be either medical or surgical. The medical treatment, even combined with a sojourn at the seaside, does not always give satisfactory results. Nevertheless, this should always be tried first; but we must closely watch its effects, and be ready to interfere surgically, if necessary.

Interstitial injections have their drawbacks: they only bring-about the cure of non-suppurating tuberculous adenitis at the price of the inflammatory dissolution of the ganglion, of great pain, and sometimes of complications. They have no advantages over extirpation, as regards relapses; they render the latter more dangerous and more difficult, by provoking adhesions and occasioning a loss of precious time. Extirpation is the operation to be preferred. Performed early, it is not dangerous,

and may be complete. It is not attended with any risk of operatory accident or of auto-inoculation. The scar which remains is not unsightly, and can be concealed.

It is believed that GALEN was acquainted with the operation of extirpating diseased glands, and SANCTORIUS has written "*ergo struma nunquam sanabunter nisi extirpantur.*"

There is then really "nothing new under the sun"!

HYSTERICAL NEURALGIA, AND ESPECIALLY FACIAL NEURALGIA.—Dr. ARTIÈRES.

There are neuralgias of hysterical origin which were nearly entirely misunderstood until the publication of the work of Dr. GILLES DE LA TOURETTE; they have a peculiar way. They appear, for the most part, in the form of paroxysms which constitute the prolonged and painful aura of a terminal convulsive attack. They may also appear as separate paroxysms. Their pathogeny appears to lie in putting into action a hysterogenous zone situated on or near the course of a nerve-ramus. These facts are easy to study, particularly in cases of facial neuralgia of hysterical origin. There may exist, as in other hysterical affections, paroxysms in the form of conditions of painful sickness, susceptible of prolongation for several days. Hysteria being *the mimetic disease* par excellence, the diagnosis cannot always be easily established by basing it on the symptomatic expression of the neuralgia itself. Nevertheless, without taking into consideration the co-existence of other hysterical phenomena, facial neuralgia of this nature is vesperal, and not influenced by sulphate of quinine. On the other hand, the means ordinarily employed against hysteria can make it disappear. But as facial neuralgia may exist in hysterical patients simply by morbid association, it is necessary, in doubtful cases, to search for *the chemical characteristics* of hysterical paroxysms; that is to say, diminution of the urea, and of the proportion of fixed residue and of phosphates in the urine. The phenomena are here the same as in cases of hysterical pseudo-meningitis. It

is therefore necessary to inform one's self on the rate of urinary secretion during two distinct periods of the twenty-four hours: one embracing the attack; the other before or after the attack.

COURSE OF COLD ABSCESSSES IN THE TROCHANTERIC REGION.—J. PARMENTIER.

These abscesses may have quite varied origins, which may sometimes be very surprising. Their diagnosis may be very difficult, and the same is the case with the diagnosis of the extent of the abscess. The invasion of the region with pus obeys the general laws of the course of all "abscesses by congestion," and the particular laws which depend upon the disposition of anatomical elements. If these abscesses originate in one of the serous bursæ which exist about the great trochanter, they usually remain localized, probably on account of the thickness of the walls of the original pocket. If they originate in the bone, they mostly spread upward and backward, under the gluteal muscles, or downward and forward, along the fascia lata. Another prolongation of the abscess, more difficult to discover, passes inwardly, either in front or behind the femur. In the former case it reaches the region of the femoral vessels and descends more or less in front of the adductors; in the second, it reaches the posterior region of the thigh and works its way behind the septum of the adductors. It passes the orifice of the femoral canal and protrudes in front.

From the point of view of the prognosis and treatment, the above notions may not be without value: they help the physician to foresee and to indicate the long duration of these purulent collections, which is due to their tuberculous nature; as well as to the havoc it is necessary to make in order to thoroughly cleanse the abscess in all its diverticula. From a point of view of operative interference, the knowledge of the existence of these false passages, of their exact and perhaps constant topography, of their small volume, and, therefore, of the difficulty sometimes experienced in discovering them,

will lead to their being more thoroughly scrutinized; so that the surgeon will be able to treat them according to the particular indications derived from their shape and their size.

TECHNIQUE OF ARTIFICIAL PREMATURE DELIVERY.—Dr. E. GRINDA.

The author is of the opinion that, in all cases where artificial premature delivery is considered necessary, there is an advantage to be gained by commencing the operation with the application of Tarnier's balloon. As a rule, under the influence of this agent there supervenes a series of painful contractions which, in the great majority of cases, are sufficient to entirely dilate the neck of the uterus in a relatively short space of time.

As an auxiliary aid to labor, after the expulsion of Tarnier's balloon, the uterine retractor may be used in the cases when the contractions are feeble or far apart—to avoid the prolongation of the period of dilatation of the cervix; the same in cases where, after the expulsion of the balloon, the uterus ceases to contract; and in all cases where it is deemed necessary to accelerate the progress of the labor.

Recourse may be had even from the very first to the uterine retractor, for the purpose of provoking labor, in multiparæ with soft and easily opened cervices; for, in such cases, it is to be feared that Tarnier's balloon, even blown up to its greatest extent, would be quickly expelled and that all labor would cease. The same in all cases where delivery must be hastened as much as possible.

Moreover, the author has been struck by the many reverses occasioned by the use of the uterine douche and by the numerous inconveniences of Klüge's method. It will be remembered that the latter is the doctrine of the MATERNITÉ at Paris.

MESENTERIC CYSTS.—Dr. H. F. ARÉKION.

These cysts are less rare than is believed. They are more frequent in women of middle age. Among the chylous cysts must be included the serous and the oleaginous cysts.

Whatever the nature of the cysts may be, there exist two well-defined clinical forms thereof: one slow of growth, and classic; the other of sudden origin, and simulating intestinal occlusion.

The diagnosis of these cysts, though often difficult, is nevertheless possible in many cases. It may be facilitated by distending the digestive tract with gases. Puncture, however, should be avoided, as it is dangerous,—although useful in deciding the diagnosis.

There are two modes of treatment: extirpation, and marsupialization—the latter longer but more sure, and avoiding shock, sphacelus of the intestine, and uncontrollable diarrhœa.

When the tumor becomes voluminous, troublesome and painful, operation is indicated; the same when the cyst develops suddenly, simulating intestinal occlusion. Cachexia is not an absolute counter-indication, notwithstanding that it diminishes the chances of cure.

The author has collected 81 more or less complete observations. He has twice noted the success of marsupialization (incision of the cyst and suture of its edges to those of the abdominal wound). He cites 22 cures in 24 operations thus performed; while extirpation resulted in cure only in about three-fifths of the cases.

SPONTANEOUS DISLOCATIONS OF THE CRYSTALLINE LENS.—Dr. H. SUREAU.

Spontaneous dislocations of the crystalline lens are always the corollary of some disease of the eye. Their appearance is not necessarily due to an accidental traumatic cause: a disease of the eye is sufficient to occasion them. They are always serious: for, in consequence of the pathological condition of the eye present, in which the zone participates, the perfect reduction of the lens is impossible—either because the zone is destroyed, or because it has no tendency to heal.

The treatment which seems to be the best is the extraction of the crystalline lens. Otherwise, the complications peculiar to the dislocation are allowed to subsist, and the patient remains exposed to inflammatory phenomena.

However, in cases of spontaneous dislocation of a crystalline lens affected with cataract, it is necessary to wait, before operating, until these inflammatory symptoms declare themselves. After the operation, vision will be found to be in direct ratio to the concomitant state of the eye.

The author makes a distinction between partial and complete dislocations, whether into the anterior or posterior chamber, or into the vitreous humor and beneath the conjunctiva. In traumatic cases, the latter are not uncommon; but only one case is known of sub-conjunctival dislocation without traumatic cause. The displaced lens generally becomes opaque. The treatment is both medical and surgical.

There are, also, spontaneous dislocations which, without being congenital, are due to congenital causes. Spontaneous dislocation may even be hereditary. All inflammations affecting the zone of Zinn can occasion a dislocation of the crystalline lens. The rupture of the zone may take place as the result of a chronic disease of the crystalline lens, particularly sclerosis. This occurs in the majority of cases. Dislocation may be caused by modifications in the dimensions and consistency of the lens. In glaucoma the dislocation is chiefly mechanical.—The denomination "spontaneous" ought to be changed.

HAPPENINGS AND DOINGS.

"EXIT THE MICROBE!" (*)

This is the title of an article published in Dr. PELLETAN'S *Journal de Micrographie*. We cannot do better than to reproduce it verbatim:

"Microbomania still reigns supreme in this world; and pathogenic microbes still cause all the ills that flesh is heir to, from consumption to corns, according to the dictum of those physicians who do not stop to reflect that the multifarious and incessant variations of the conditions under which we live, are sufficient to explain the inroads made upon our healths.

"It would seem, nevertheless, that a single negative case ought to be enough to demolish the whole hypothesis. Nothing of the sort! The more such negative observations multiply, the more obtrusively the doctrine

triumphs. Numerous as these observations are, we wish to add one more to them. Latterly Dr. CHARRIN, who, however, is one of the most fervid adepts of the dominant bacteriomania, reported at the SOCIÉTÉ MÉDICALE DES HÔPITAUX a case of tuberculosis without the bacillus of tuberculosis. The case was examined under the lead of Prof. BOUCHARD; and at the autopsy,—for the patient died,—in spite of the most searching and repeated examinations performed by Dr. CHARRIN, who is an expert thereat, no trace could be found of any specific bacillus, neither in the fresh tissues, nor in the indurated parts, nor by 'culture' on various media. Nevertheless, the man had unquestionably died from consumption."

Dr. PELLETAN'S articles are always remarkable for their humor and good sense. But the preceding item, in which we have not changed a sentence, is quite typical of our period; and we may well ask how it comes to pass that the *Bacterium coli* takes the place of the *Bacillus of Eberth* in the "production" of typhoid fever, and why the Bacillus of Eberth produces pleurisies that are not typhoid?—Have we, now, been wrong in saying that the science of medicine in France is in a state of imminent crisis?

OFFICIAL POSOLOGY.

There is much interest shown in France, of late, regarding the danger which physicians incur in ignoring the posology of a number of new drugs, many of which are eminently toxic. It is to lessen the difficulties of practitioners, that Dr. PELTIER has just submitted to the Paris ACADEMY OF MEDICINE the following propositions, which have been referred to an Examining Committee:

1. The ACADEMY is invited to draw up, and to cause to be published, every year, under its control and with its approbation, an Official List of all dangerous drugs, with the maximum or toxic dose of each, for both children and adults.

2. There shall be published, every six months, or every three months if necessary, a Supplement to this official list, comprising the nomenclature of new drugs introduced into therapeutics during the previous six months or three months.

* "La Défaite des Microbes."

3. Any physician who shall restrict himself to the doses indicated in this List, cannot be indicted for poisoning.

4. A physician is not permitted to exceed said doses, except on his personal responsibility.

MESMERISM PROHIBITED.

The PREFECTURE OF POLICE, in Paris, forbade the meeting of the MESMERIC SOCIETY on Wednesday, April 13.

The Society had asked for the necessary authorization to hold this meeting, and it had been granted with the condition "that *no mesmeric or hypnotic experiments, either real or simulated, should be made.*" A police official, who was present to overlook the performance, made an objection to a *card trick*, declaring that it came under the head of "simulated magnetism."

It must be noted that the Society had intended, as soon as its means would permit, to found a Free Dispensary, where patients could be cared-for with the assistance of consulting physicians. The Society believes that "it is more than probable that the FACULTY OF MEDICINE OF PARIS, much opposed as they are to the aim of the Society—which is, to treat patients gratuitously by means of magnetic passes,—has not been a stranger to the restrictive measures which have been adopted."

INSANITY IN PARIS.

Dr. P. GARNIER states that, from 1872 to 1888, insanity increased in Paris by 30 per cent. In 1872 there were 3,080 cases of insanity recorded at the Central Police Office, and in 1888, 4,449 cases. The total number in Paris, from 1872 to 1888 inclusive, was 62,752 cases: men, 34,882; women, 27,770.

CLINICAL PAPERS

ON LIVE TOPICS.

TREATMENT OF METRORRHAGIA.

By ARTHUR W. EDIS, M. D., LOND.; F. R. C. P.

[Abstract of a lecture delivered at the CHELSEA (England) HOSPITAL FOR WOMEN.]

Cases of uterine hæmorrhage, which baffle every attempt to relieve, and cause much worry and anxiety at the time, are often met-with.

It will be my endeavor to offer suggestions calculated to assist in the management of these cases. Of all the organs in the body the uterus is the only one from which blood flows at periodical intervals as a normal physiological process. It is only when the discharge becomes excessive, or recurs with too great frequency, that we are called-upon to deal with it as a pathological process. Uterine hæmorrhage must not be regarded as a disease or entity *per se* for which one method of treatment is universally applicable, nor must we regard it as an invariable evidence of disease; for it may be merely an expression of constitutional or general vascular tension; the uterine mucous membrane acting, so to speak, as a safety-valve, a smart

attack of hæmorrhage often serving to avert a still more serious effusion from the ovary or its surrounding plexus into the peritoneal cavity or even an attack of apoplexy at the so-called "climacteric period"; the uterine hæmorrhage being beneficial and often affording a useful hint as to treatment. Although, as I have suggested, hæmorrhage is but a symptom and not a disease, still the practitioner is often compelled to regard this symptom from a clinical point of view.

A correct diagnosis is the first and most important element of successful treatment; for, until we know the former, the latter is but mere guesswork, and we are just as liable to do harm as good in attempting to repress the hæmorrhage.

The principle of diagnosis by exclusion is one which approves itself to many, determining, in fact, to what cause the hæmorrhage is *not* due. This, of course, can only be done by knowing beforehand what are the most likely causes of severe or protracted hæmorrhage—

the possibilities, so to speak, and then eliminating one after the other until we have left only two or more probabilities.

In attempting to arrive at a correct diagnosis it is of great importance to get as clear and concise a history of the attack as possible. This alone will not infrequently enable us to differentiate a uterine fibroid from a pelvic hæmatocele, or a miscarriage from malignant disease; in any case, a reliable history is always of service.

The mere fact of a patient going even a few weeks beyond the time at which the menstrual period should have occurred and then becoming profusely unwell, should put us on our guard as to the probability of impregnation having taken place with subsequent detachment of the ovum and partial expulsion. Even where we get a history of an early miscarriage, we must be careful not to overlook the possibility of an extra-uterine gestation, the decidua having been thrown off, and not an ovum, as supposed. It is of great importance to examine carefully everything passed by the patient from the vagina in the form of clots and *débris*. A miniature cyst no larger than a currant may be sufficient to suggest to our minds the presence of cystic degeneration of the villi of the chorion. A shred of membrane, decidua in character, may suggest the expediency of inquiring very carefully into the history, lest we unwittingly overlook a case of extra-uterine gestation.

Before resorting to a vaginal examination with the view of detecting some local cause for hæmorrhage, it should, as a matter of routine, be the invariable custom to ascertain first the condition of the principal organs, more especially the heart, liver, and kidneys. Many cases of profuse metrorrhagia, seen in consultation, have been found to be due to some cardiac mischief, hepatic congestion, or renal complication, and not at all to any uterine disorder. In fact, the gynæcologist must be a good "all round" practitioner, with special experience in diseases of women; not a mere specialist who can see nothing amiss in a patient

except through a vaginal speculum,—if he would understand how to deal successfully with the puzzling cases met-with in practice. The mistake too often made is in not insisting upon a vaginal examination where ordinary measures have been tried and have failed.

Some of the most difficult cases as regards diagnosis occur at or about the so-called climacteric period. Terminal floodings are by no means infrequent. A patient misses a period or two, and then has a smart attack of uterine hæmorrhage. This may merely imply the lessening of arterial tension at the surface of least resistance, the occurrence of an early miscarriage; or it may be the first indication of commencing malignant degeneration in the cervix uteri. In many instances hepatic congestion, due to abuse of alcoholic stimulants, constipation, and general inactivity, will help to explain the occurrence of hæmorrhage. Before attempting to prescribe medicine for such cases, the general condition and habits of the patient must be carefully considered and a local investigation made, as otherwise we may be depriving the patient of the only chance of recovery by partial or complete extirpation of the uterus, if malignant disease be present. Many distressing instances could be cited where "change of life" had been rashly affirmed to be the cause of the flooding, without any examination confirmatory of such a suggestion having been made, where advanced malignant disease proved to be the real cause.

Speaking very generally, there will almost invariably be some local uterine cause detected, if hæmorrhage be really severe. Still it is well to bear in mind that although there may be a distinct local disorder, the amount of hæmorrhage may be materially influenced by the presence of some constitutional condition—cardiac, hepatic, or renal, aggravated, perhaps, by the injudicious employment of alcoholic stimulants given with the intention of relieving the effects of the profuse loss of blood.

The mere fact of the existence of a fibroid tumor, for instance, attended by profuse metrorrhagia, does not necessarily prove that our

attention should be mainly directed to the treatment of the fibroid. Much may be done to arrest the hæmorrhage by the administration of appropriate aperients to relieve the portal circulation, securing a proper amount of rest, restricting the diet, and quieting the heart's action by the employment of digitalis and other remedies.

Where no sufficient explanation of the hæmorrhage from any constitutional condition can be detected, we must then make a vaginal examination and endeavor to ascertain what the local cause may be. In order that we may carry out the principle suggested of diagnosis by exclusion, it is important to bear in mind what are the chief local causes of persistent or profuse uterine hæmorrhage. These may be briefly enumerated as threatening miscarriage, retained products of conception from incomplete abortion, subinvolution of the uterus with granular erosion, or laceration of cervix; villous or hæmorrhagic endometritis; hæmatocele; new growths in the form of polypi, mucous, fibroid, and placental; fibroid tumors, intramural and submucoid; malignant diseases of the cervix, or rarely of the fundus uteri; retroflexion of the uterus with prolapse of one or both ovaries; and pregnancy with intense granular erosion of cervix, or the presence of a small mucous polypus projecting from the cervix.

The possibility of extra-uterine gestation, cystic degeneration of the villi of the chorion, accidental hæmorrhage from partial detachment of the ovum in the first few months of uterogestation, and inversion of the uterus as exceptional occurrences, must not be overlooked.

TREATMENT.

Where uterine hæmorrhage results from constitutional or general condition, it is not always wise to attempt to check it or repress it entirely, unless it is producing such an effect upon the system generally as to suggest the expediency of arresting it at all hazards.

In certain cases of heart-disease, moderate uterine hæmorrhage, in place of aggravating, seems often to relieve the cardiac symptoms, and should not, therefore, be hastily repressed.

Such agents as potassium bromide with strophanthus, digitalis, or aconite, relieve hæmorrhage in these cases more than any other remedies. Iron is also very useful. If the liver seem to be at fault, attention to diet, abstinence from alcohol, encouraging the action of the skin, and the administration of a few grains of calomel, blue pill, or euonymin, followed in the early morning by a brisk saline aperient, will probably be indicated.

If albuminuria be present, or the kidneys seem to be at fault, encourage vicarious action of the skin and bowels by means of diaphoretics and purgatives, and treat the case upon its general merits.

The reliable remedies at our disposal for checking or arresting uterine hæmorrhage are really very few. Ergot is unquestionably one of our most potent; combined with strychnine and cinchona, its effect is often more evident. Whether it shall be given as fluid extract, infusion, ergotin in pill, or hypodermically, will depend upon individual experience and other circumstances.

Hydrastis canadensis is a valuable agent in many cases of fibroid, and is an agent apparently too little known.

Hamamelis or hazeline is useful in some cases. The ordinary astringents, such as gallic and sulphuric acids, have really very little influence in restraining hæmorrhage, and are far too often relied upon. Quinine and strychnine, alone or in combination, will often succeed in checking or arresting hæmorrhage in those cases where the system is much depressed from repeated or prolonged losses. Potassium bromide in cases of hæmorrhagic chlorosis, ovarian irritation, and even in hæmatocele, possesses the power of checking hæmorrhage equal, if not superior, to that of any remedy we possess. Chlorate of potassium and borax, in combination with ergot, are highly spoken-of by some; *cannabis indica* has also its advocates.

Where the loss has been very severe or protracted, opium has a wonderful restorative effect; given in combination with quinine or cinchona, the benefit seems to be enhanced. The ad-

ministration of iron should not, as a rule, be resorted-to when any foreign body is suspected to be present in the interior of the uterus. It often serves to intensify the loss, and aggravates materially the condition of the patient. It is of much benefit in those cases of hæmorrhage where, from antecedent anæmia, the blood has become so attenuated as to pass readily through the capillaries; and in certain cases of profuse loss from the presence of intramural fibroids.

As regards local remedies, the hot vaginal douche at a temperature of 110 to 115° F is often of service. Absolute rest in the horizontal position, preferably in bed, is indicated in all severe cases. The application of carbolic acid on a Playfair's probe to the cervical canal, and even to the cavity of the uterus, in suitable cases, may check hæmorrhage for a time. I have even seen instances where free scarification of the cervix uteri, by lessening uterine congestion, succeeded in arresting hæmorrhage where ergot was useless. Where uterine hæmorrhage persists, no assignable cause for it—such as malignant disease of the cervix, fibroid, inversion, or pelvic hæmatocele—being detected, and ordinary remedies have been tried and failed, we should, without further delay, dilate the cervix and explore the interior of the uterus.

Numerous instances have been recorded of patients dying from uncontrollable hæmorrhage, where a *post-mortem* examination revealed the existence of some intra-uterine growth—such as a polypus or submucous fibroid, retained product of conception, or fungoid condition of the endometrium, which could readily have been removed had appropriate measures been adopted in time, and the patient's life thus saved. Plugging the vagina is a very useless and unscientific procedure and should never be relied-upon. The mere insertion of a laminaria or carbolized sponge-tent into the cervix uteri, arrests the hæmorrhage for the time being, and facilitates subsequent exploration of the uterine cavity. As to any risk of reflux through the Fallopian tubes, it is merely visionary, provided, of course, only appropriate cases are selected.

It would clearly be impossible, in the limits

of a lecture, to indicate in detail the various methods of dealing with individual cases. My object has been rather to suggest in what cases exploration is necessary, and to throw out such hints as may prove of value in practice.

ARTERIAL RUPTURES.

By Prof. SCHWARTZ.

[Abstract of a hospital lecture delivered at Paris.]

Before approaching the vast subject of arterial pathology, permit me to briefly recall the structure and physiology of the arteries.

The arteries may be classified, according to their size, into large, medium, and small. Taking one of medium calibre as a type, we find it to be composed of three coats: an external or fibrous coat; a middle elastic or muscular coat; and an internal coat—smooth, thin, and consisting of endothelium. The external tunic is extensible; the middle is elastic and contractile; the internal is endothelial, without the slightest roughness that might hinder the flow of the blood. Of these three layers the most important is the middle one; according as an artery belonging to the elastic type or one pertaining to the muscular kind is examined, the one or the other of these elements notably predominates. This is important from a pathological point of view, as an example will show: wounds of the face bleed freely; but, owing to the contractility of the smooth muscular fibres of the arteries, facial hæmorrhages are easily arrested. Remember, finally, that the arteries are generally in connection—deeply, with osseous planes; superficially, with fascia and muscles; that they are also usually in quite immediate contact with veins and nerves, thus forming vasculo-nervous bundles surrounded by protecting sheaths.

So much for the anatomy of the arteries; let us now pass on to arterial lesions.

These lesions are hard to classify: divisions have been made as numerous as unsatisfactory. We will here first establish two great groups: ruptures and wounds. By rupture we mean all traumatism which does not bring the solution of continuity into contact with the external world; the acting force does not attack the

arterial tube directly. In wounds, the solution of continuity communicates with the exterior or with a great cavity of the body; the wounding force acts directly on the artery. Ruptures and wounds will be studied successively.

Arterial ruptures are rare. This rarity is due to the anatomic causes alluded-to above: the protection offered to the arteries by the muscles and the fascia; the deep situation usually occupied by these vessels; the presence of a perivascular sheath which permits their sliding over the neighboring organs. Nevertheless, arterial rupture does occur, and in one of two ways: either from violence acting perpendicularly to the arterial wall—the artery being pinched, so to speak, between a deep osseous plane and a direct pression; or from violence exerted parallelly—the artery breaking from distension or elongation.

In the first case, the most frequent cause is contusion, which may be produced in the most widely different manners. In this category should be placed arterial ruptures by bullets and pieces of shell, which break the artery without causing cutaneous lesions. The second category comprises the cases of rupture of the axillary artery occurring in dislocations of the shoulder or in their reduction (old dislocations), or in breaking up old anchyloses (popliteal artery).

One essential remark must here be made. A factor of prime importance governs the ætiology of arterial rupture: it is the state of the artery itself. A healthy artery rarely breaks; but when it is attacked in its integrity, when it is atheromatous, its elasticity disappears and at the same time its principal safe-guard. The surgeon should therefore first give his attention to the condition of the arterial system, so as not to have his intervention compromised by a complication of the kind now under consideration.

From an anatomic-pathologic point of view, arterial ruptures may be divided into two great classes: incomplete or rather non-penetrating ruptures; and complete or rather penetrating ruptures. Non-penetrating ruptures are those where the internal tunic of the artery resists,

and where the middle and internal coats are wounded together or one of them alone.

When the two inner tunics are wounded they shrivel up in the interior of the vessel; the internal coat acts the same way when alone attacked. In both cases the flow of blood is thereby effectively obstructed. Penetrating ruptures may be divided into two groups, partial and total. When partial, the rupture implicates the wall in all its thickness but only in a part of its circumference; when total, the break extends throughout the entire circumference. It obtains chiefly in cases of distension, of elongation. The external tunic is torn apart, while the two inner coats are shrivelled up in the interior of the artery. In non-penetrating rupture, the blood does not flow outward, but produces thrombosis and consequent obliteration. In penetrating rupture, the blood is poured out in quantities varying with the laxity of the neighboring tissues.

The division of the symptoms proceeds from these considerations: in one form of arterial rupture all the signs of obliteration—either temporary (the circulation being re-established by collaterals), or definitive and followed by gangrene—may be present; in another form, that called hæmorrhagic, the symptoms vary with the quantity of blood effused.

The diagnosis of arterial rupture is usually very difficult, unless there be abundant hæmorrhage. When there is incomplete rupture, we can scarcely be but aided, at the very outset, by the commemorative signs.

The prognosis is always grave, so much the more as the wounded person bears interference poorly. Furthermore, all the signs of aneurism are often seen to appear four, five, six years after the accident.

The treatment will vary, of course, in different cases: in those of obstruction, we should strive to favor the establishment of collateral circulation; in cases of considerable effusion, it is necessary to interfere immediately—to endeavor to find the injured artery and apply a ligature; finally in certain cases, as a last resource, disarticulation or amputation must be resorted-to.

NEW REMEDIES,

AND NEW LIGHT ON OLD ONES.

ANTIPYRINE AS AN ANTIDIPHTHERITIC.

At a recent meeting of the SOCIÉTÉ DE BIOLOGIE at Paris, Dr. WURTZ read a communication (*Prog. Méd.*) from Dr. VIANNA, of Bahia, purporting to show that ANTIPYRINE possesses a bactericide and toxinicide action on Loeffler's bacillus. In a former series of experiments Dr. VIANNA observed that the addition of $2\frac{1}{2}$ % of ANTIPYRINE prevented the development of the diphtheria bacilli in the various culture-media. Furthermore, the addition of the same proportion of ANTIPYRINE to tubes containing cultures of Loeffler's bacillus in full development, killed these bacilli in forty-eight hours; with the admixture of 5 % of the medicament, this result was obtained in twenty-four hours.

The same agent was found to exercise an analogous action on filtered bouillon-cultures—that is to say, on the toxins of diphtheria. A number of guinea-pigs that received injections of filtered bouillon to which 4–8 % of ANTIPYRINE had been added, died after from 5 to 24 days. Injections of the same filtered bouillons *without* the addition of ANTIPYRINE killed in less than 3 days. ANTIPYRINE thus appears to exert a remarkable toxinicide influence on the diphtheritic poison, which it does not completely destroy in reality, but whose effects it notably retards.

These statements seem all the more interesting since ANTIPYRINE (as against other antiseptics—such as corrosive sublimate) can be administered in large doses—locally, by ingestion, or by subcutaneous injection. ANTIPYRINE therefore appears worthy of trial as a therapeutic means against diphtheria.

CASSIA OIL IN FAVUS AND ALOPECIA.

Dr. BUSQUET, surgeon in the French army, believes that the application of certain essential oils, particularly CASSIA and lavender oils, constitutes an excellent means of treating favus. He uses the following formula:

Cassia Oil.....1 part.
Ether (slightly alcoholized)3 parts.
Externally!

With this solution the parts are bathed once daily, by means of a pledget of cotton. Care should be taken to burn the cotton after use, to avoid dissemination of the contagious germs.

With these baths the author claims to have promptly obtained dryness of the favous parts, the cup-shaped favous crusts becoming pulverulent, the neighboring epidermis exfoliating little, and all abnormality disappearing in a few days.

Herpes circinatus is reported to have yielded very quickly to the same treatment.

In alopecia areata, which, according to recent researches, is also parasitic in origin, most satisfactory results are said to have been obtained with the above treatment. Cases which had proved rebellious to all other measures (iodine tincture, blisters, corrosive-sublimate lotions, etc.) and which had existed three months, were cured completely by the application of the solution of CASSIA OIL in 3–5 weeks, on the average; the hairs rapidly came again in the form of a down, whitish at first, but coloring after a few days.

Dr. BUSQUET cuts the hair as short as possible, and protects the unaffected parts of the scalp from being wet with the CASSIA-OIL solution. He orders, besides, frequent disinfections of the hair with a strong solution of carbolic acid.

The first applications of the ethereal solution of CASSIA OIL sometimes produce a little redness and a slight sensation of heat; but, according to the author, these phenomena of irritation completely disappear upon interrupting the treatment for a day or two.

Dr. BUSQUET has treated three cases of alopecia areata of the beard by the above plan. In two of these, the bald patches, which measured 5×3 centimetres [$2 \times 1\frac{1}{5}$ inches], became covered with a pretty thick layer of hair within ten days; in the third, in which the affection had existed

a year, the same effect was obtained only after twenty-five days.

CINNAMIC ACID IN TUBERCULOSIS.

CINNAMIC (Cinnamyllic) ACID— $C_6H_5 \cdot CH \cdot CN \cdot COOH$ —is a constituent of Peru balsam, storax, tolu balsam, a number of benzoin-resins, and the metabolic products of certain bacteria. When pure, it is in beautiful, white, odorless crystals; insoluble in cold water, but soluble in hot water, in alcohol, and in ether.

Dr. A. LANDERER, of Leipsic, has employed CINNAMIC ACID prepared from storax in tuberculosis, internal as well as surgical; it is used chiefly in the form of an emulsion of the following composition (*Wien. Med. Presse*):

Cinnamic Acid.....	gr. LXXX [5 gm.].
Sweet-almond Oil.....	gr. CLX [10 “].
Egg Yolks.....	No. 1.
Sodium-chloride Solution (0.7 %/o).....	enough to make
	$\frac{2}{3}$ fl. iiiss [100 gm.].

First the CINNAMIC ACID is thoroughly triturated with a small quantity of the oil, after which the remainder of the oil is added, and then the yolk of egg. When the whole is intimately mixed, the solution of table salt is added drop by drop, until the emulsion measures three and a half fluid ounces. When intended for use, this emulsion is diluted with 25 %/o of potash-lye.

In internal tuberculosis, the author employs the remedy only by *intravenous injection*, in the following manner: The veins of the arm are caused to be distended by gentle application of a rubber bandage. Then, after having carefully disinfected the field of operation, a syringe with a sharp canula is plunged through the skin into the wall of a vein of the elbow. The ready movability of the point of the canula within the vein, the easy flow of the injection-fluid without the occurrence of local extravasation, and the disappearance of the blue color of the venous blood, are signs that the vein has really been entered. After the injection the site of puncture is dressed with sublimate gauze and a mull bandage, and then the elastic bandage is slowly removed. Bleeding or inflammation at the point of injection never occurs, it is claimed,

and a number of injections may be made at one and the same point without danger. The quantity injected fluctuates between 0.1–1 cubic centimetre [$1\frac{1}{2}$ –15 min.] of the 5 %/o emulsion of CINNAMIC ACID; in children and debilitated persons the dose is still smaller. The injections are usually made twice a week; in by far the most cases the patients can be treated, it is held, without being put to bed.

In this manner 18 individuals were treated; of these, 9 are reported cured, 6 were much improved, 1 remained unchanged, and 2 died.

As regards the action of the intravenous injections, the immediate effects are said to be nil, if the doses have been properly chosen. However, some patients complain in the evening or on the following day of exhaustion, tiredness (especially in the legs), and slight headache; in febrile cases the temperature falls the same evening $1^{\circ}C$ [$1.8^{\circ}F$] and more, after a short preliminary rise of 0.3 – $0.5^{\circ}C$. The more remote effects are frequently not very striking during the first 2–4 weeks; patients with good nutrition experience nothing at all from the injections. But after about three weeks the sputum changes its color and loses its purulent character, becoming more mucous; the cough is no longer associated with expectoration, but becomes more of a dry “irritative” cough; sleep improves, and the annoying night-sweats soon cease entirely; the appetite becomes sharpened; and finally the shortbreathedness vanishes. Physical examination, say in the fourth week, usually reveals the dullness about the same as when the treatment was begun—at the most, cleared up only at apices; but the auscultatory signs are found much changed; the most râles have diminished in intensity and in number and are often replaced by crepitation and whistling; in specially favorable cases they may already have disappeared entirely. Even at this period the percentage of bacilli in the sputum has suffered a demonstrable diminution. The bodily weight during the first weeks of the treatment remains stationary as a rule, or declines a trifle.

The further progress in the milder cases was a comparatively smooth one. The real recuper-

ation took place only some time after suspending the injections; there then survened an increase in weight, a healthy countenance, and a feeling of comfort. It is recommended to continue the treatment even in mild cases for at least three months; in severe cases 6-9 months. Even after ending the treatment the patient should always remain under medical control, and be treated anew upon the slightest suspicion of a relapse. Untoward accessory symptoms may arise, it is conceded, particularly after too large or too frequent doses; however, nephritic phenomena were never observed.

—The treatment of *surgical* tuberculosis with CINNAMIC ACID extended over 45 cases, of which, it is claimed, 31 were cured, 7 were improved, 1 remained unaffected, 2 died, and 4 were yet under treatment at the date of this report. The principle was to introduce a sufficient quantity of CINNAMIC ACID into all the tuberculous parts and their surroundings. In closed fungi emulsion of CINNAMIC ACID was injected as deeply as possible—as far as or into the bones, usually at one and the same spot, and in doses of 0.5 cubic centimetres [$7\frac{1}{2}$ min.], twice a week. The pain is reported as being very slight; with injections into fungi, it is entirely wanting. Of course, free use was made of the usual adjuvant remedies of conservative therapy. In fistulous processes where there was no need of immediate operation, injections of a 5 % *alcoholic* solution of CINNAMIC ACID were made; eventually, parenchymatous or parossal ones of CINNAMIC-ACID emulsion. If this proved of no avail, the diseased surfaces were laid bare, scraped, and tamponed with Peru-balsam gauze or cauterized with cinnamic alcohol (styrone). Frequent irrigation of the drained wound-cavities with Peru balsam or with cinnamic alcohol, proved very serviceable.

—Finally, CINNAMIC ACID was employed with alleged good results in 14 cases of lupus vulgaris. The following formula was used :

Cinnamic Acid	} of each, 1 part.
Cocaine Hydrochlorate	
Alcohol.....	

18 parts.
Externally !

Of this solution 1-2 drops were injected into each nodule—as much as 10 injections being made at one sitting. Most frequently the latter were made into the margins, the lupus perceptibly diminishing in size; however, according to the author, they may at the same time be made also into the centres. The immediate effect is a small yellow spot in the nodule, arising from a precipitation of the CINNAMIC ACID. Then there appears redness and tumefaction, which disappear in 36-48 hours. The nodule now sinks in, the part grows paler, and in the course of the following weeks closely approaches normal skin in its composition. Only small quantities should be injected—such as will provoke merely swelling and redness, without causing gangrene and the formation of retracting scars. The application of a Peru-balsam plaster is recommended as of service. It is maintained that lengthy pauses in this tedious and quite prolonged treatment do not impair its curative effect.

Dr. LANDERER draws the following conclusions from his experience :

- 1.—In CINNAMIC ACID we have an agent which exerts a powerful influence upon tuberculosis.
- 2.—Its topical application can effect a retrogression of local manifestations of tuberculosis.
- 3.—With due care, the intravenous injection of CINNAMIC ACID is innocuous.
- 4.—It is capable of curing a considerable proportion of internal tuberculous affections.
- 5.—CINNAMIC ACID is, of course, no specific against tuberculosis, in the true sense of the word.

CHLOROFORM PICTET.

In view of the great interest which CHLOROFORM PICTET has excited both in the medical and in the pharmaceutical world, Mr. H. HELBING, conjointly with Dr. F. W. PASSMORE, director of Helbing's Pharmacologic Laboratory at London, made a careful chemical investigation of this preparation. The specimens examined consisted of fourteen bottles containing CHLOROFORM purified by the PICTET process,

with or without subsequent addition of absolute alcohol.

As pointed out in *Helbing's Pharmacological Record*, the boiling-point of CHLOROFORM is stated by some authorities to be 60° C [140 F], while by others it is placed as high as 70° C [158 F]; and the specific gravity of the same fluid at 15° C [59 F] has been variously stated between 1.502 and 1.510, which slight incongruity is ascribed in part to the presence of more or less *alcohol* in the CHLOROFORM examined

The results of the authors' investigations are summarized as follows:

1.—The CHLOROFORM purified by PICTET's process of re-crystallization is a very pure preparation, and is constant in its quality; its specific gravity at 15° C [59 F] is 1.5002; it boils at 61.1° C [142 F], and leaves no appreciable residue.

2.—The presence of a small percentage of ethylic alcohol in CHLOROFORM considerably lowers the boiling-point—a mixture containing one per cent of alcohol commencing to distil 1° C [1.8 F] lower than absolute CHLOROFORM.

3.—The presence of a small quantity of ethylic alcohol in CHLOROFORM does not retard its decomposition when shaken with concentrated sulphuric acid and exposed to sun-light; but it does prevent the liberation of chlorine in an uncombined condition.

CORROSIVE SUBLIMATE AS A VESICANT.

Dr. AUBERT regards CORROSIVE SUBLIMATE as an admirable means of vesication, specially efficacious in the treatment of certain syphilides, particularly acneic ones. A 1% solution is used and applied on compresses, which are left *in situ* for six or seven hours. At the end of this period of time a vesication analogous to that obtained with a cantharideal blister will have been produced. The contour of the compress exactly limits the phlyctæna, the serum of which is believed to be aseptic and not to produce growth in culture bouillons. As a drawback to this mode of vesication is mentioned the quite violent pain which it causes, as compared with an ordinary blister.

To avoid the action of the solution beyond the intended limits, it is well to first apply a piece of lead-plaster into which a hole is cut of the dimensions desired for the blister. The compress saturated with the mercurial solution and well wrung out is then applied over the opening. Circular pieces of lint may be substituted for the compress. The whole is covered with oiled silk, cotton, and a bandage.

GLYCERIN IN HEPATIC COLIC.

In a paper read before the ACADÉMIE DE MÉDECINE at Paris, Dr. FERRAND warmly recommended GLYCERIN in the treatment of hepatic colic, and claimed for it the following advantages:

1.—When administered per os, it is absorbed by the lymphatics, particularly by the vessels going from the stomach to the transverse fissure of the liver and to the gall-bladder.

2.—It is a powerful cholagogue, and a valuable remedy against hepatic colic.

3.—In relatively large doses (20–30 grammes [4–6 fl. drs.]), it hastens the termination of the attack.

4.—Taken daily in small doses (5–15 grammes [1–3 fl. drs.]), with a little alkaline water, it prevents further attacks.

5.—Although not a lithontriptic, it is nevertheless the remedy *par excellence* in cholelithiasis.

HALOID CALCIUM SALTS THERAPEUTICALLY.

At a recent meeting of the ACADÉMIE DE MÉDECINE at Paris, Prof. GERMAIN SÉE read a paper relating the results of his careful and thorough study of the therapeutic action of the haloid salts of calcium, particularly in diseases of the stomach. The following are his conclusions (*La Méd. Moderne*):

1.—To introduce lime into the organism in a positive manner, the salts of calcium must be prescribed—the bromide, and above all the chloride of calcium which contains more than two-thirds calcium. The customary preparations of lime are uncertain, because they are

absorbable only to a minimum extent; they are eliminated only in very small quantity by the kidneys, which proves that they have scarcely entered the circulation; they are passed almost wholly by the intestines, without acting on the economy.

2.—Iodide and bromide of calcium are salts which are specially adapted to producing the effects of iodine or of bromine in the organism. In fact, the respective proportion of iodine or of bromine in them is greater than that in all the other iodides or bromides. Besides, the calcium employed to neutralize the bromine or the iodine possesses neither the active and often disagreeable properties of potassium, nor the inertness of sodium.

3.—Bromide and chloride of calcium act beneficially in a very large number of dyspepsias and gastric lesions.

4.—Thus, it is the calcium that acts favorably on the stomach when calcium iodide is substituted for potassium iodide. Both of these salts act marvelously on respiration, on the heart, and on specific diseases; but calcium iodide, which, by the way, is employed in smaller doses, is perfectly well borne by the digestive organs; while potassium iodide is manifestly injurious to them. There is then a special indication for each of the three halogenous salts of calcium; but also an indication common to them, in so far as all three are gastric medicaments.

IODOFORM IN VESICAL TUBERCULOSIS.

Dr. PETIT recommends (*Sem. Méd.*) injections of IODOFORM in tuberculosis of the bladder. His favorite formula is:

Iodoform.....	3 v	[20 gm.].
Glycerin.....	fl. 3 II	[10 “].
Distilled Water.....	fl. 3 ISS	[6 “].
Gum Tragacanth.....	gr. IV	[25 ctg.].
Externally!		

Of this liquid a teaspoonful is added to 150 grammes [5 fl. oz.] of lukewarm water with 10 drops of laudanum, and slowly injected into the bladder by means of a hydrocele syringe, through a conical rubber catheter. After the lapse of two minutes, about one half of the injected fluid

is withdrawn through the catheter, while the remaining half is retained as long as possible. The injections, which are said to provoke neither pain nor tenesmus, are repeated twice a week.

LAMBS'-SERUM IN SYPHILIS.

Dr. P. L. TOMMASOLI, professor of cutaneous diseases and syphilis at the UNIVERSITY OF MODENA, has tried (*Gazz. degli Osp.*) intramuscular injections of lambs'-serum in six cases of secondary syphilis, five of which presented various cutaneous manifestations, while the sixth had besides a periostitis of the left external malleolus. The serum was separated simply by allowing the blood to stand for twenty-four hours on ice. The dose varied from 2 to 8 cubic centimetres [$\frac{1}{2}$ –2 fl. drs.]; the total number of injections was sixty-four, each patient receiving at least three, and one thirteen injections. The latter were followed by a slight rise of temperature, and a circumscribed painful induration at the point of injection.

As the apparent result of this treatment, the author claims that the secondary eruptions quickly and completely disappeared. His observations are being continued, and another communication on the subject is promised. As yet, sufficient time has not elapsed to show whether the cures are real or only apparent.

PAPAVERINE AS A SUCCEDANEUM FOR OPIUM IN INFANTS.

Dr. G. LEUBUSCHER, lecturer on internal medicine at the UNIVERSITY OF JENA, has been convinced by observation that in small children PAPAVERINE is devoid of the drawbacks of opium, which is so much feared on account of its general action, and that it can be employed with safety and advantage in infantile practice in the capacity of an *anti-diarrhœic*; for it exerts, it is claimed, a very manifest sedative action on the intestine. It is employed in the form of its *hydrochlorate*, in doses of 0.005–0.05 gramme [$\frac{1}{12}$ – $\frac{3}{4}$ grain], according to the age of the patient. Thus, for instance, for a child two years old the dose is

stated as being 0.025 gramme [$\frac{2}{5}$ grain]. These doses may be repeated, it is maintained, three to eight times within twenty-four hours; in the majority of cases, however, three or four doses a day of PAPAVERINE HYDROCHLORATE suffice to arrest the diarrhœas, even when of many days' standing. The medicament is best prescribed in powders, mixed with milk-sugar.

PYOKTANIN IN PYLORIC CARCINOMA.

Dr. FELIX BARON VON OEFELE has treated four cases of cancer of the pylorus by means of PYOKTANIN, and with good results. He prescribed gelatine capsules, each containing—as stated in the *St. Petersburger Medicinische Wochenschrift*—0.01 gramme [$\frac{1}{6}$ grain] of cocaine phenate and 0.09 gramme [$1\frac{1}{2}$ grains] of antifebrin. Of these one was administered every morning, on an empty stomach; after which the patients had to refrain from eating anything for about an hour. Four or five hours later,—the patients having eaten some easily digestible food in the interval,—a large gelatine capsule filled with a 2% solution of PYOKTANIN in alcohol, was given.

From the fourth day on, a second PYOKTANIN capsule was administered four hours after the first, and when necessary, later in the course of the disease, a third one.

In consequence of this treatment the pains in the abdomen disappeared; the patients became desirous of eating, felt stronger, and increased in bodily weight.

RED BILBERRY IN RHEUMATISM.

The RED BILBERRY (*Vaccinium Vitis Idæa*, L.) was first used in rheumatism by Dr. T. T. HERMANN, at the suggestion of the Russian Medical Council. He used it (according to *The Brit. Med. Journ.*) in the form of a decoction or infusion of 1 part of the fresh herb (with roots) to 8 parts of the colature—from two to three tumblerfuls being given daily—in an obstinate case of chronic articular rheumatism in which all the usual methods of treatment had failed. A striking improvement followed in a few weeks, while in two months the patient (an

old man) was practically cured.

S. P. SMIRNOFF, of Cronstadt, next tried the substance in nine patients (sailors and soldiers aged from 22 to 27), of whom six were suffering from acute, and three from chronic articular rheumatism. In all of them the RED BILBERRY treatment was commenced after all ordinary means (including sodium salicylate, sodium or potassium iodide, hot baths, local application of iodine tincture, turpentine oil, belladonna, mercurial or potassium-iodide ointment, etc.) had proved quite inefficacious. The remedy was used in the form of a decoction, prepared from 1 or 2 ounces of fresh stems, with leaves and roots, in 6 ounces of water; this amount being given daily in divided doses. The duration of the treatment varied from one week to three months. Of the nine patients seven were cured, while in the remaining two the remedy failed (in one after a week's course, in the other after three months). In all the cases a slight increase of the daily quantity of urine was observed; while in the patients in whom catarrhal diarrhœa was present, the latter quickly ceased under the influence of the decoction.

SMIRNOFF sums up as follows:

- 1.—The results obtained must be regarded as exceedingly favorable.
- 2.—The RED BILBERRY treatment deserves a further extensive trial.
- 3.—The method is extremely simple, convenient, harmless, and cheap (in Russia the RED BILBERRY is one of the commonest plants).
- 4.—It is advisable to continue the use of the decoction for some time after complete disappearance of all symptoms; since in one case, which had been cured in five weeks, a relapse occurred three and one-half months later.
- 5.—It is useful to combine the internal treatment with the local application of anodynes and counter-irritants.

ELDER (*Sambucus nigra*), in full doses, has been found to be a very prompt diuretic in acute *nephritis* with anasarca.

SYNTHETIC ORGANIC COMPOUNDS. *

DI-iodo-thio-resorcin is a brown amorphous powder; soluble in alcohol, insoluble in water. Upon being heated it decomposes, with the evolution of hydrogen sulphide and the formation of sulphur, without melting. The clinical investigation of this resorcin-derivative is not yet concluded; however, from the experiments thus far made, it appears to be a very good siccative antiseptic, surpassing aristol in efficacy.

METHYLENE IODIDE— CH_2I_2 —is a yellowish fluid, of a specific gravity at 5°C [41°F] of 3.342, and boiling with partial decomposition at 180°C [356°F].

MONO-CHLOR-NAPHTHALENE, ALPHA-,— $\text{C}_{10}\text{H}_7\text{Cl}$ —is a fluid of a specific gravity at 6°C [42.8°F] of 1.2028, and boiling at 250°C [482°F].

SULPHO-RICINIC ACID is a yellowish fluid; easily soluble in water and in alcohol; its solutions foam when shaken, have a scratchy taste, and, like the acid itself, decompose upon standing for a long time—sulphuric acid being formed.

SULPHO-SALICYLIC (Salicyl-sulphonic) ACID— $\text{C}_6\text{H}_3.\text{SO}_3\text{H}.\text{OH}.\text{CO}_2\text{H}$ —occurs as white crystals; readily soluble in water and in alcohol. It has been recommended as a reliable and extremely sensitive test for urine-albumin. (See MERCK'S BULLETIN, Vol. IV, p. 52.)

E. MERCK.

ZINC CHLORIDE IN DIPHTHERIA.

Dr. WILHELMY, of Berlin, warmly recommends (*Deut. Med. Wochensch.*) cauterizations with ZINC CHLORIDE in diphtheria,—a method of treatment which has given him excellent results in over 100 cases. Recent investigations by LOEFFLER, OERTEL, ROUX, YERSIN, and others, having shown that diphtheria is without doubt primarily only a *local* infection of the faucial mucous membrane with the diphtheria bacillus, the object of treatment would be to destroy the local focus of the disease. For the

latter purpose a 20% solution of ZINC CHLORIDE is recommended—to be applied by means of cotton wool and forceps curved at the end, as early and thoroughly as possible, the application being made *once* only. It is claimed that the caustic penetrates deeply into the diseased tissues but does not affect the sound epithelium. The bleeding is reported to be insignificant, and the after pain readily overcome by sucking ice, or—in the case of small children—drinking iced water. Œdematous swelling of the throat was never observed—possibly because the patients were instructed to swallow ice for some time, or because an ice-collar was applied besides in many cases. Afterwards a gargle (or mouth-wash) of the following composition was prescribed:

Lime Water.....	300 grammes	[10 fl. oz.]
Glycerin.....	30 “	[6 fl. drs.]
Peppermint Oil.....	5 drops.	

Externally!

Much stress is also laid upon the administration of nourishing broths and wine.

As the result of this treatment, adopted early, most of the cases remained of but slight severity; extension of the false membrane to the nose or to the larynx did not take place, the slough separated in from three to six days, and threatened heart-failure was never observed. However, paralysis occasionally occurred.

PILOCARPINE is reported to be of marked advantage in *Menière's disease*, if given early.

SALICYLIC ACID is considered by Dr. HUBER a safe and important diuretic in serous *pleurisy* and *cardiac dropsy*.

FLUID EXTRACT OF SERPENTARIA is recommended by Dr. J. R. FRITTS in *rhus-poisoning*—painted on the affected part and its immediate surroundings three times a day.

CINNAMON TINCTURE, made from the oil, is considered by some a specific for *post-partum hæmorrhage*. 20–60 drops are given as often as necessary to control the bleeding.

* Those of the substances here named which are *not therapeutically described*, will be so as soon as the necessary data are received.

PRACTICAL HINTS

ON METHODS IN THERAPY, PHARMACY, ETC.

BROMOFORM EXHIBITION - A PALATABLE FORM.

1309 Third avenue, NEW YORK, }
May 23, 1892. }

EDITOR MERCK'S BULLETIN:

A formula for the administration of BROMOFORM in solution recently appeared in your columns (April No., page xviii).

I take exception to it as being altogether too pungent to be administered to young children. Something is needed to mask the fiery taste of the BROMOFORM, which certainly is not diminished by adding alcohol, compound tincture of cardamom, and glycerin, each of which of itself has a burning taste.

BROMOFORM has the physical characteristics of Chloroform and should be administered in the same way. Here is my idea of a BROMOFORM prescription:

Bromoformi.....℥ xv [2.5 gm.].
Muc. Acaciæ.....℥ ʒ iss [60 "].
Syrupi Tolutani.....℥ ʒ ss [20 "].

M. l. a. — "Shake well." (It is easily suspended.)

Dose: Teaspoonful as the physician may direct.

Several incidents in my neighborhood, showing the unsatisfactory nature of the alcohol-and-glycerin mixture, have prompted this writing.

THOS. LATHAM.

SANTONIN;—ADMINISTRATION AND DOSAGE IN CHILDREN.

Although SANTONIN has been known for a long time and is very frequently employed, its dosage does not appear to be exactly established as yet. In fact, it is often prescribed in too small and consequently insufficient doses for the complete expulsion of ascarides; sometimes it is administered in sufficiently large doses to produce intoxication.

According to Prof. R. DEMME, of Berne, the quantity of SANTONIN that can be given to a child six years old with effect and without danger, is 0.01–0.03 gramme [$\frac{1}{6}$ – $\frac{1}{2}$ grain] per dose, and 0.06–0.09 gramme [1 – $1\frac{1}{2}$ grains] per day. To insure the vermifuge action of the

medicament, it is recommended to combine it with calomel. This is the professor's favorite formula:

Santonin.....gr. iss–iii [0.09–0.18 gm.].
Calomel (condensed by steam)...gr. iiii [0.18 "].
Milk-sugar.....gr. lxx [4.50 "].

Mix and divide into 9 powders!—One at 6, at 7, and at 8 o'clock in the morning, for three consecutive days.

CHLOROFORM,—DIFFERENT ACTION OF DIFFERENT BRANDS.

The records in recent medical journals of deaths during CHLOROFORM anæsthesia have prompted Prof. M. CHARTERIS, of GLASGOW UNIVERSITY, and his assistant, Dr. WM. MACLENNAN, to investigate the comparative action of different makes of CHLOROFORM. Believing that differently manufactured CHLOROFORM, although conforming to the tests required by the pharmacopœia, might have different actions, and that possibly some of the dangers were due to the use of an *impure* article, these investigators determined to test this assumption by administering CHLOROFORM to guinea-pigs. The same animals were put under the influence of six brands on *different* days, as only in this way was it considered possible to satisfactorily ascertain a careful comparative estimate of their action. The usual method of administering the vapor on a piece of blotting paper under a bell jar, the quantity in case being 30 minims.

The conclusions from this research show that there *is* a very evident difference of action exhibited by CHLOROFORMS of different manufacture. Thus, with one brand, anæsthesia was produced in 3 minutes and 55 seconds, while with another it took 4 minutes and 20 seconds; respiration ceased with one kind in 1 minute and 13 seconds, in another only after 4 minutes and 43 seconds; recovery from the anæsthesia ensued with one brand in 7 minutes and 40 seconds, with another only after 18 minutes and 20 seconds; and with two of the brands no tremors were observed, while with the others

distinct or even pronounced rhythmic tremors manifested themselves. The authors therefore assume that some of the brands contain a substance or substances *extraneous* to pure CHLOROFORM.

GRAVE SYMPTOMS OF IODISM, AND THEIR PREVENTION.

Although, in the vast majority of cases, potassium iodide is well tolerated or provokes merely symptoms of iodism, often disagreeable but not grave, it sometimes happens (according to *La Semaine Médicale*) that, under its influence, terrible accidents occur which can even cause death.

During the last three or four years grave intoxications from potassium iodide have been reported by various authors. These facts are at variance with the old idea which considered phenomena of iodism unimportant. The particular idiosyncrasy in patients by virtue of which potassium iodide can have evil consequences, is met-with—as intimated above—very rarely. However, it is of great practical interest: for, with a substance so frequently employed as potassium iodide, the physician is very apt to meet a patient presenting intolerance for this medicament.

The questions now arise in one's mind, What are the grave accidents liable to be produced by potassium iodide? In what conditions and in consequence of what doses do these accidents supervene? What are the means of preventing and combating them? The answers, briefly stated below, are such as the clinical facts thus far observed permit of giving to these important questions.

The grave accidents provoked by iodine usually assume the form of œdema of the glottis. It is well known that, among the phenomena of iodism, serous infiltration of the eyelids is a quite frequent occurrence. It is therefore not astonishing that the serous imbibition observed in the eyelids can show itself also in the larynx. There obtains then œdema of the glottis with its customary symptoms of suffocation. Of the cases of iodic œdema of the

glottis thus far observed, some have terminated fatally; others have recovered—either spontaneously, or in consequence of tracheotomy.

In some patients the iodic intoxication manifests itself in the form of a generalized cutaneous eruption, resembling bullous pemphigus. This happens most often in subjects affected with nephritis. The latter disease therefore favors iodic intoxication. Acute iodic œdema of the glottis having been observed in individuals presenting no abnormality that could explain its appearance, it must be admitted that this œdema is often due to an idiosyncrasy, the nature of which we are as yet completely ignorant of.

The doses of potassium iodide that bring-on œdema of the glottis are, in general, small ones. In the cases reported by Prof. FOURNIER, of Paris, they were of 1 gramme [15 grains], 50 centigrammes [$7\frac{1}{2}$ grains], and even 20 centigrammes [3 grains]. A single dose of 0.2 gramme [3 grains] has produced œdema of the glottis in a few hours.

In regard to this subject, a still more striking fact, recently reported by Dr. L. KESSLER of Dorpat, might be mentioned: this author has seen the terrible symptoms of œdema of the glottis supervene in a woman in whom he injected, *par vaginam*, a teaspoonful of a 1:3 solution of potassium iodide.

As already mentioned, œdema of the glottis seems to follow mostly the use of *small* doses of potassium iodide,—which fact agrees with what is known of the mild phenomena of iodism (coryza, frontal headache, conjunctivitis, etc.), which are often more intense when the potassium iodide is administered in small quantities than when the same medicament is given in large doses. Thus, in some patients with psoriasis, Dr. HASLUND claims to have administered with impunity as much as 40 grammes [10 drs.] of potassium iodide daily; Dr. GUTTELING, even 57 [$14\frac{1}{4}$ drs.]!

—Since a long time attempts have been made, with various means, to combat the customary accidents of iodism. It has been recommended to ingest the iodide with a large

quantity of milk, and to simultaneously administer certain medicaments—such as belladonna extract (in daily doses of 0.1 gramme [$1\frac{1}{2}$ grains]), potassium bromide (in doses double those of the iodide), etc.

These means may be tried occasionally; but there is still another, lauded by Drs. RÖHMANN and MALACHOWSKI, of Breslau, as superior to all the others: it is *sodium bi-carbonate*. These authors based their idea of employing the latter medicament against the phenomena of iodism on the chemical consideration, that alkalization of the blood ought to prevent the liberation of iodine from potassium iodide in the body.

The practical application of this idea has fully confirmed the prophecies of Drs. RÖHMANN and MALACHOWSKI. An experience of more than two years has convinced the latter investigators that the symptoms of iodism can be mitigated and even suppressed by administering, simultaneously with the iodide, 5–6 grammes [75–90 grains] of sodium bi-carbonate daily, in 2 doses.

From the facts, thus briefly stated, the following conclusions are drawn by the journal quoted:

1.—Before administering potassium iodide, it is well to be assured of the integrity of the patient's renal filter. Of course, a lesion of the kidney is no absolute contra-indication to the use of potassium iodide: for the good effects of this medicament in certain forms of nephritis (chronic interstitial nephritis) are well known. Potassium iodide may therefore be prescribed in these cases, if necessary; but it should be given in small doses, and its action watched.

2.—If the kidneys are sound, the possibility of a special idiosyncrasy to the medicament must still be considered. For this reason, it is advisable to administer the potassium iodide from the beginning with sodium bi-carbonate, and to give the former in the usual dose (not in small doses, which provoke œdema of the glottis more readily than large ones); it is well also to watch the patient during the first few days, so as to be able to take the necessary steps (tracheotomy, etc.) at the slightest indication of glottic œdema.

3.—The sodium bi-carbonate can be tried also against the usual symptoms of iodism, which, although benign, are nevertheless annoying to the patients.

SPLENOMEGALIA.

This is an ill-defined and little-studied affection, and as yet based only on conjectures. However, Dr. RENDU, of the HÔPITAL NECKER, describes an alleged case of it occurring in a vigorous and rather plethoric man of thirty-seven, previously without any constitutional defect. Since six years he has had pains or rather a vague feeling of uneasiness in the left hypochondrium, with dyspnœa. For three years the region has been the seat of a tumor, and there have been intercurrent stitches in the side. The pains radiate toward the left side, and are distressing during inspiration. A dry cough has survened; in the lower fourth of the left lung there are signs of pulmonary and pleural congestion. The predominating symptom is the abdominal tumor; the belly is flat and even depressed on the right side, bulged on the left, with a little sinking-in of the last ribs. The tumor is ovoid, with its longer diameter vertical; palpation shows it to be hard, woody, even and smooth, and without diffuse sensibility to touch. Posteriorly the tumor blends with the kidney; but anteriorly it has a distinct border, blunt and rounded, with a notch—the hilum of the spleen—at the middle. The tumor is dull on percussion for more than 30 centimetres [12 inches] perpendicularly and 20 centimetres [8 inches] across. There is neither ascites nor any development of collateral veins; but there are some varicosities to the left, and even a little varicocole on that side.

With regard to the diagnosis, the author reasons as follows: The tumor can come only from the kidney or from the spleen. A renal tumor would be more elongated vertically, deeper, more convex, and less movable than one of the spleen. Here there is quite marked lateral mobility. It is no cyst, hydatid or otherwise, because its form is distinct and its

consistence uniform. It must be a "congested and fibrous spleen."

It is conceded that hypertrophied spleen may be the result of syphilis; but in the present patient there probably have been no antecedent syphilitic symptoms, else the liver would also be enlarged. Again, hypertrophied spleen may be of malarial origin, without intermittent fever co-existing; but in the case under consideration there is no malarial, cadaverous, or yellowish complexion, and the liver is not hypertrophied. Finally, it is held that with leucæmia there sometimes exists an enlarged spleen; but in our patient the blood is normal. Therefore, by exclusion, the diagnosis of idiopathic hypertrophy of the spleen (splenomegalia, or essential hypersplenia) is arrived at. There is no anæmia, but some dyspepsia; the urine is about normal.

The author considers the prognosis in this case grave: cachexia may develop in consequence of vomiting and gastric intolerance; renal lesions, uræmia, and repeated hæmorrhages may survene.

As for treatment, if the affection were of malarial origin, Dr. RENDU would give quinine sulphate. Arsenical preparations have sometimes succeeded in such cases. But, in the author's opinion, it is, above all, hydrotherapy that can ward off surgical interference.

CARBOLIC REVULSION.

Dr. CHEVALIER highly commends (*Gaz. Hebdomadaire de Bord.*) carbolic revulsion according to Dr. PERRON. He reports that he himself was cured of a mild bronchitis by painting the two sides of the anterior portion of the thorax with a carbolized solution, by means of a small cotton tampon; that shortly after the application of the remedy he experienced a burning sensation which lasted for some time; that the epidermis desquamated from the fifteenth to the twentieth day, leaving a redness behind which soon disappeared; and that he employed the same procedure with undoubted success in several grave cases. In the course of a severe case of typhoid fever in a young man, a violent stitch-pain survened under the right nipple. The

temperature rose to almost 40° C [104 F]; the pulse was small and beat 128 times a minute; and the respirations numbered 32 per minute. A pleurisy with extensive effusion had developed on the right side. Dulness was complete posteriorly as far up as the spine of the scapula; neither vesicular murmur nor thoracic movements could any longer be distinguished. Ægophony and tubular respiration were manifest. In front, sonorousness was exaggerated, and there was tympanism in the three first intercostal spaces. A camphor-blister with morphine did not modify the thoracic condition, the liquid in the pleural sac did not diminish. So with a second blister (which produced cystitis), and a third, and even a fourth one: the effusion was stationary. Dr. CHEVALIER then painted the entire right side of the chest, excepting the places where the blisters had been applied, with the following solution:

Carbolic Acid.....	19 parts.
Alcohol (90%)	1 part.

For two hours the pain produced by the application was intolerable, and the restlessness extreme. But on the following day marked improvement had set in: respiration was more easy; the dulness had descended down to the angle of the scapula. Seven days after the painting there was no trace left of effusion, and the lung was normal. The emanations from the carbolic solution had produced a pharyngeal angina and a catarrhal ophthalmia which, however, soon disappeared.

The author flatters himself with having avoided thoracentesis by means of the carbolic revulsion, and declares that he has employed this method with success in a number of other cases. As, however, the pain produced by the application is very severe, he proposes the following solution, which is said to provoke no pain:

Carbolic Acid.....	19 parts.	
Alcohol (90%)		} of each, 1 part.
Cocaine Hydrochlorate.....		

To avoid the pharyngeal and ocular accidents mentioned above, it is advised to cover the thorax with gutta-percha tissue immediately after the painting.

ICHTHYOSIS; — TREATMENT.

Dr. THIBIERGE of the HÔPITAL SAINT-LOUIS does not first resort to the internal treatment of this affection, save the administration of tonics when the general condition of the patient demands it. External means alone are employed; among these the most favored are simple baths or baths with bran-tea, with or without the addition of glycerin. They are taken for one, two, or even three hours at a time, and accompanied by frictions with green soap or with pumice soap (soap with one third of pumice stone). In the main, the author aims at softening the epidermis so as to facilitate its desquamation with soap, or by mechanical means. In the grave forms soft soap, or—better—an ointment of precipitated sulphur and salicylic acid, is applied besides. In spite of these measures the epidermis is said to reform, the desquamation being but transient.

It is recommended always to subject the patients, after this bleaching, to a treatment consisting of baths and the application of greasy substances—particularly glycerin in the form of glycerite of starch to which one-thirtieth of tartaric acid may be added, this application being regularly repeated twice a day. It is claimed that the obstinate affection in question can be ameliorated by following this treatment for a sufficiently long time.

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GONORRHOEA;—ABORTIVE TREATMENT.

Having discovered by endoscopic examinations, that in acute gonorrhœa more or less recent the urethra is affected only for a distance of 4–5 inches [10–12½ centimetres], beginning at the orifice of the penis, Dr. C. COTES, of London, has based on this fact a method of treatment which has given him brilliant results. It consists in cauterizations with a 2% solution of silver nitrate, performed as follows: The patient having urinated, an endoscopic tube is gently introduced into the urethra (after previous anæsthetization by means of a 10% solution of cocaine, if the sensibility of the parts is excessive) only 5 inches—that is, as far as the disease of the mucous membrane extends. This

done, a thin probe, armed with a cotton tampon saturated with a 2% solution of silver nitrate, is introduced into the tube of the endoscope in such a manner that the cotton makes its exit from the posterior orifice of the endoscopic tube and comes into contact with the urethral mucous membrane. Then the endoscopic tube and the probe are gently withdrawn up to about 2 inches from the penile orifice, when a second probe armed with cotton freshly impregnated with the silver solution, is introduced in the place of the first one. Care must be taken that the cotton passes the posterior orifice of the endoscope, and that everything is withdrawn. In the manner indicated the entire extent of the affected membrane is cauterized, and nothing but that.

The cauterization always provokes a burning but otherwise bearable pain, which disappears at the end of about ten minutes. The patient takes a warm bath, and the next day he remains in bed, if possible. The customary diet of gonorrhœics is prescribed; also a saline purgative, copaiva, and urethral injections of some feebly astringent liquid. The latter, which serve chiefly as a means of ridding the urethra of the inflammatory products, are made as often as possible (six times daily). The syringe employed should not contain more than 2 drams [8 grammes] of liquid; for, as Dr. COTES's experience has shown, just that quantity is necessary to distend the urethra for a distance of 5 inches, the extent of the disease.

The immediate effect of the cauterization is reported to consist only in the appearance of an abundant purulent secretion, which persists for 24–48 hours, and then diminishes and assumes a serous character. After 7 or 8 days all discharge disappears, and the patient is cured.

Dr. COTES has treated 42 cases of acute gonorrhœa by this method. All of them have been cured by a single application of the silver nitrate in from 2–12 days.

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ABDOMINAL MASSAGE, for 3–10 minutes at a time, is considered by Dr. KARNITZKY as the best treatment of infantile *constipation*.

DIABETES MELLITUS.

In a paper on this subject recently read before the MEDICAL SOCIETY OF LONDON, Dr. RALFE divided cases of confirmed diabetes into two classes—*alimentary*, and *general*. In the former, the sugar is, at the outset, entirely removable by restricted diet—being, in all probability altogether hepatic in origin; but after a while it can no longer be completely removed by dietetic restrictions, a part remaining irremovable. In general diabetes, only a portion of the sugar is removable even in the beginning of the trouble, the balance being entirely non-removable by dietetic restrictions. This form of diabetes is usually of neurogenic origin, and is also observable in the so-called "pancreatic" diabetes.

As regards the origin of this irremovable sugar, the author thinks it does not proceed entirely from the metabolism of the proteid food-elements, but also from the transformation of the glycogen in other tissues and organs of the body beside the liver, either by a general lowering of the power of assimilating sugar in the organism from continued passage of sugar into the circulation, or owing to the loss of a sugar-destroying (glycolytic) ferment in the blood, normally furnished by the pancreas and other glands.

Dr. RALFE also asserts that in purely alimentary diabetes, any addition, however slight, of amylaceous or saccharine food to the diet, still further impairs the assimilative processes in the liver, and causes an increased excretion of sugar; in the general form, on the other hand, any relaxation of diet induces an increase in the irremovable sugar. In a case in which the ratio of removable to irremovable sugar was 5 : 1, after a short resumption of a mixed diet it became 1 : 1.6.

Having thus shown that a relaxation in diet always aggravates the disease, the author goes on to prove that the proposed relaxations from the usual dietetic restriction are insufficient to combat any theoretical dangers resulting from a proteid diet; the modicum of bread, milk, mashed potatoes, and subacid fruits, is inade-

quate in itself to restore the balance, whilst they contain sufficient sugar to materially injure the patient. Instead of such relaxations Dr. RALFE would decrease the intake of proteid (of which diabetics frequently take too much), and would increase the green-vegetable food (which is often much neglected); massage also powerfully aids the assimilation of the proteid food.

As regards the administration of opiates, it is discountenanced so long as the glycosuria is entirely controllable by diet; but when the sugar ceases to be completely removable even by the strictest of diets, opium is recommended, and may be increased as long as the excretion of sugar continues to diminish under its use. It is advised to stop any further increase of the drug when no further diminution in the glycosuria takes place, or when the latter increases in spite of the medicament.

GUNSHOT-WOUNDS OF THE SPINAL CORD.

Dr. VINCENT reports (*Rev. de Chir.*) three cases of penetrating gunshot-wounds of the spine with injury to the cord in which he trephined. In the first case (one of injury to the first lumbar vertebra) the removal of fragments of bone and of the bullet was followed by complete recovery. In the other two cases (both of penetrating wounds in the lower dorsal region, with laceration of the cord and its membranes) similar treatment was followed by death in one on the fourth day, in the other on the ninety-fourth day. With these the author has tabulated 30 other cases from various sources, a study of which, in conjunction with his own, leads him to the following conclusions:

1.—Gunshot-wounds [of the spinal [cord, though very grave, are not necessarily fatal.

2.—Whatever be the nature of the injury to the cord (unless complicated by serious injury to the viscera), provided the wound has involved the posterior or lateral parts of the spine at an accessible part, the track of the bullet should be opened up as far as the vertebral arch, and after investigation of the nature and extent of the lesion, all

foreign bodies should be removed. If trephining of the walls of the spinal canal should be found necessary, the surgeon should not hesitate in performing the operation. Such treatment might be beneficial, and, though sometimes useless, never does any harm if practiced under strict antiseptic precautions.

BRAIN-TISSUE,—NEW METHOD OF HARDENING.

Prof. STIEDA, of Königsberg, has published a short description of a new method of hardening the brain. By this method, as described in *The Lancet*, dry preparations are obtained which are extremely useful for purposes of demonstration and study. The specimen is first immersed in a concentrated watery solution of zinc chloride, so much of the salt being taken as will allow the brain to float. After being twenty-four hours in this, the specimen is removed; it will be found to have remained soft, but, at the same time, to have acquired a certain consistence and toughness, so that the pia mater can be removed without injuring the cortex. The brain is now placed in 96-per-cent alcohol, either as a whole, or after separation into parts. To expedite the hardening, it is advisable to renew the alcohol from time to time. In two or three weeks the specimen will be found to be sufficiently hardened. It is then taken out of the alcohol and placed into turpentine, in which it remains from two to four weeks, according to the condition of dehydration in which it was previously to being placed into the turpentine. The process can also be hastened a little by using an incubator, but great care is necessary to prevent shrinking. By means of the turpentine the specimen again becomes soft but transparent, and acquires a brownish color varying in tint with the kind of turpentine used. Finally, the specimen is placed in oil-varnish, in which it remains for two weeks. It is then taken out and left uncovered for a week or two, exposed to the usual temperature of a room, until it is dry and no longer oily to the touch. The final color is a somewhat pleasing brown; the specimen is but little shrunk, and, as has been said,

it is very useful for demonstrations and also for study.

ELECTRICITY IN ENURESIS.

Dr. SERENO reports the case of an unmarried woman of twenty-four who had been suffering from incontinence of urine since childhood, which was successfully treated with electricity, after belladonna had proved of no avail. There was no sign of hysteria, epilepsy, or ataxia. The patient urinated in the bed every night, and during the day the urine escaped under the influence of the least effort. The interrupted current was employed, with a large wire. One pole, in the form of a plate, was applied over the abdomen, and the other brought into contact with the sphincter of the bladder by means of a vesical sound. The current was of supportable intensity, and was applied for five minutes three times a week. After eight sittings the patient wetted her bed only one night out of every two, and retained her urine very well during the day. A complete cure is confidently expected.

HYOSCINE, in doses of $\frac{1}{200}$ — $\frac{1}{100}$ grain, is warmly recommended in the delirium of *typhoid fever*, if wild and strange.

WHITE-COHOSH INFUSION is reported to be an efficient remedy in *afterpains*, without interfering with the contraction of the womb.

PINEAPPLE has been used with good results by Dr. F. H. LUTTERLOH in a case of *tape-worm*. He simply ordered one-half of one to be eaten.

LITHIUM BENZOATE, in 5-grain doses, has been highly lauded in *lithæmia* with constant backache, sometimes circumscribed and painful urination.

SODIUM BI-CARBONATE has been warmly recommended in *acute tonsillitis*. The dry salt is applied to the tonsils, and taken internally in 30-40-grain doses.

GATHERED FORMULAS.

53.—Anal Fissure.—(Treatment.)

[GALLOIS.]

ENEMA.

Krameria Extract.....	1 gramme	[15 grains].
Glycerin.....	40 grammes	[1 fl. oz.].
Water	120 “	[4 “ “].

Inject every other morning.

(It is also recommended to use an emollient clyster every morning of the intervening days.)

54.—Infantile Dyspepsia.—(Treatment.)

[G. SIMON.]

MIXTURE.

Cascarilla Tincture.....	2 grammes	[½ fl. dr.].
Rhubarb Tincture.....	4 “	[1 “ “].
Bitter-orange-peel Tincture	} of each, 8 “	[2 “ “].
Gentian Tincture....		
Nux-vomica Tincture		

For a child of seven, 10–15 drops in water, after meals.

55.—Gastric Hyperacidity.—(Treatment.)

[BOAS—*Sem. Méd.*]

MIXTURE.

Calcined Magnesia.....	15 grammes	[½ oz.].
Bismuth sub-Carbonate	} of each, 5 “	[1¼ drs.].
Sodium bi-Carbonate		
Belladonna Extract	} of each, 0.1–0.2 gm.	[1½–3 grs.].
Nux-vomica Extract		

A teaspoonful of this powder half an hour after each meal.

56.—Hemicrania.—(Treatment.)

[SCHLUTIUS—*Pharm. Ztschr. f. Russl.*]

PASTILLES.

Phen-acetin.....	3 grammes	[45 grains].
Caffeine and Sod., Salicyl.....	0.15 gramme	[2½ “].
Quinine Hydrochlorate	2 grammes	[30 “].
Morphine Hydrochlorate.....	0.05 gramme	[¾ grain].
Saccharine.....	0.01 “	[⅙ “].

Divide into 10 pastilles!—One per dose.

57.—Chapped Hands.—(Treatment.)

[WENDEL—*Pharm. Centralbl.*]

WASH.

Green Soap.....	1 part.
Compound Benzoin Tincture.....	4 parts.
Glycerin.....	8 “
Rose Water.....	16 “

58 and 59.—Intestinal Flatulence.—(Treatment.)

[POTAIN.]

CACHETS.

Powdered Nux Vomica.....	1 gramme	[15 grains].
Powdered Anise.....	2 grammes	[30 “].

Mix, and dispense in 10 cachets!—One twice daily, before meals.

MIXTURE.

Columbo Tincture	} of each, 3 parts.
Ether Spirit.....	
Star-anise Tincture.....	} of each, 1 part.
Nux-vomica Tincture	

Twenty drops before each meal.

60 and 61.—Digitalin in Cardiac Dyspnoea.

MIXTURE [POTAIN].

Digitalin (crystallized).....	10 cg.	[1½ grains].
Glycerin (30° Be.).....	33 cc.	[528 min.].
Distilled Water.....	14 “	[224 “].
Alcohol (95%) to make.....	100 “	[1600 “].

(50 drops [17 minims] of this solution represent 1 milligramme [1/64 grain] of Digitalin.)

MIXTURE [DUJARDIN-BEAUMETZ].

Digitalin (crystallized).....	0.02 gramme	[3/10 grain].
Alcohol	12 grammes	[230 min.].
Glycerin	12 “	[150 “].

(60 drops [20 minims] of this solution represent 1 milligramme [1/64 grain] of Digitalin.)

62–64.—Leucorrhœa.—(Treatment.)

POWDERS [PAILLARD].

Iron Oxide, brown [“sub-carb.”]	} of each, 0.10 gram. [1½ grains].
Powdered Columbo.....	
Powdered Cinnamon.....	
Powdered Ergot	0.25 gramme [3¾ “].

One or two such powders daily.

PILLS [BRAUN].

Ergot Extract.....	1.5 grammes [23 grains].
Iron Sulphate.....	} of each, 4 “ [60 “].
Potassium Carbon.	
Glycyrrhiza Extract....	} of each, a sufficient quantity.
Powdered Glycyrrhiza..	

Divide into 50 pills!—Two or three every morning, noon, and evening.

CACHETS [MORTIMER-WILSON].

Calcium Sulphide.....	1 gramme	[15 grains].
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Dispense in 10 cachets!—One mornings and evenings.

(For little girls BOUCHERT recommend frequent lotions of Lead-water or decoction of Marshmallow Leaves, and the injection of a 1:3000 solution of Corrosive Sublimate.)

WINTERGREEN OIL (6 drops three times a day) has been used with good results by Dr. J. A. WYETH in *gonorrhœa*.

STICTA PULMONARIA (2 drops of the tincture every half hour or hour) is considered almost a specific for *occipital headache*.

STRYCHNINE SULPHATE, in doses of $\frac{1}{100}$ — $\frac{1}{60}$ grain every two hours, is lauded in the first stages of severe "cold" with persistent chilliness, slow pulse, and subnormal temperature.

POTASSIUM NITRATE in 1-grain doses, triturated with milk-sugar and given every two hours, is said to produce great relief in acute *bronchitis* characterized by sharp, short, dry, hacking cough.

GELSEMIUM TINCTURE (10 drops every four hours), according to Dr. L. WATKINS, will almost invariably relieve *backache*.

BRYONIA TINCTURE, in 5-drop doses four or five times a day, is recommended by Dr. BOLDT as a simple and efficient remedy in *irritation* of the vesical neck.

HOT WATER is lauded as one of the best gargles in *suppurative tonsillitis*—relieving pain, congestion, and swelling, and hastening the time when its contents may be evacuated.

AMMONIUM CHLORIDE (10 grains), with Atropine ($\frac{1}{120}$ grain), is recommended in persistent *facial neuralgia*—the dose being repeated, if necessary, every two or three hours.

EDITOR'S NOTES.

OUR INSTITUTIONS.

BELLEVUE HOSPITAL MEDICAL COLLEGE.

Dr. A. ALEXANDER SMITH has been appointed Professor of the Principles and Practice of Medicine and Clinical Medicine, in the place of Dr. E. G. JANEWAY, resigned; Dr. HERMANN M. BIGGS has been appointed Professor of Materia Medica to fill the vacancy created by the appointment of Dr. SMITH to the chair of Practice, etc. Dr. BIGGS is also made Professor of Pathological Anatomy and Clinical Medicine.

Dr. SMITH has been nominated Attending Physician to Bellevue Hospital to fill the vacancy caused by the resignation of Dr. JANEWAY from the Hospital Board.

Dr. HENRY M. SILVER has been appointed Demonstrator of Anatomy in place of Dr. BIGGS.

THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.

The Faculty of this institution recently elected Dr. WILLY MEYER Professor of Surgery.

THE WILLIS EYE HOSPITAL OF PHILADELPHIA.

The annual report, dated December 31, 1891, has been received. It shows a large amount of work for the year, the total number of patients treated being 12,280; patients admitted to the wards, 668. The number of operations for the year were 2,763.

The surgical committee, in its report, shows the great

need of more funds to prosecute its work thoroughly, and it has suggested that the sixtieth anniversary of the founding of the institution be celebrated as a Donation Day.

NEW YORK EYE AND EAR INFIRMARY.

The family of the late Dr. ABRAM DU BOIS have announced to the trustees of this institution their intention of presenting to them \$80,000 for the erection of a new pavilion as a memorial to Dr. DU BOIS, who for nearly fifty years was connected with the institution as attending and consulting surgeon.

The plans for the new buildings of the Infirmary include three pavillions.

NEW BOOKS.

A CLINICAL TEXT BOOK OF MEDICAL DIAGNOSIS FOR PHYSICIANS AND STUDENTS; based on the most recent methods of Examination. By OSWALD VIERORDT, M.D.; Translated by FRANCIS H. STUART, A.M., M.D.—W. B. Saunders, Phila., 1891. Price: cloth, \$4.00; sheep, \$5.00.

This, the first American edition, is a translation made in part from the first and in part from the second German editions. The treatise is too voluminous to permit of detailed review; we can only point out the general arrangement.

In Part I, the author gives, under Chapter I, a few introductory remarks regarding the general plan for obtaining and recording the facts relating to history and gen-

eral condition of the patient. In Chapter II he outlines the complete method to be followed in obtaining both the subjective and objective symptoms. This, for its completeness, is worthy the perusal of every one who may be desirous of becoming an exact diagnostician.

In Part II, the general examination of the patient is taken up in sections and in minute detail. The great minuteness and the theoretical nature of the matter treated become wearisome.

A very pretty picture is given of the schematic temperature curves, but fever is treated in such a manner that the student would naturally be led to look upon it as a pathological condition in itself rather than as a symptom only. This, however, is a mistake commonly made, and one that the profession are slow to recover from.

Chapter IV, in Part III, is devoted to the study of the respiratory tract, and is exhaustively complete. In fact, it contains so much detail work that it cannot be regarded as of practical service, except as a general book of reference.

In Chapter V, the circulatory apparatus is treated in the same exhaustive manner, but the endless detail attached to every point touched-upon renders the chapter largely valueless. Simplicity in physical diagnosis is in much greater demand than a multiplicity of fine distinctions.

In Chapter VI, the digestive system is as completely studied as the foregoing sections. In this, however, a very valuable discussion of the examination of the fæces is given, and many practical points noted regarding valuable diagnostic data obtainable from such investigations.

The parasites and micro-organisms infesting the alimentary canal are very closely discussed; thus giving much valuable information not easily found elsewhere.

Chapter VII is devoted to the examination of the genito-urinary apparatus and to urinary analysis. This section is unquestionably the weakest one in the book, but reference is made to works on general surgery, which somewhat overcomes its defects. The part devoted to urinary analysis is fairly good, but hardly up to date.

Chapter VIII deals with the nervous system and excels anything in print outside of some works devoted exclusively to neurology.

In the last chapter, which appears as an appendix, a complete study of the laryngological department of medicine is given.

Numerous cuts, generally well executed, aid the text very much. The general typographical appearance of the book is excellent, and the index is complete.

As a book of reference it should be found in the library of every physician.

MANUAL OF PHARMACY AND PHARMACEUTICAL CHEMISTRY. By CHAS. F. HEEBNER, Ph. G., Professor of Pharmacy and Director of the Pharmacal Laboratory at the Ontario College of Pharmacy. Third Edition. New York: J. H. Vail & Co., 1892.

This work is designed with especial reference to its use by pharmaceutical students. It belongs to that large class of condensed manuals the demand for which is due to a widely prevalent desire to obtain immediate results in technical study, without submitting to the tedious routine of preliminary and comprehensive mental training which is necessary as a ground-work for a thorough professional education. Unlike many of its congeners, however, this work gives evidence of special study, by its author, of the conditions and needs of the class of students for whom it is intended. The chapter on urinary analysis will prove of interest to medical students. The matter is in a very abbreviated form, and does not embrace tests which have recently been introduced; but so far as it goes, it is clearly expressed and eminently practical.

THE PATHOLOGICAL HISTOLOGY OF BRONCHIAL AFFECTIONS, PNEUMONIA, AND FIBROID PNEUMONIA. By A. G. AULD, M.D.—J. & A. Churchill, London, 1891.

As in all branches of study and investigation, certain phases suffer from want of attention, so in pathology the changes in the histologic structures of the bronchi under the influences of disease-processes seem to have been somewhat neglected. The author of the book under consideration, appreciating this fact, undertook the task of remedying this want, and has done so most admirably, as the volume attests.

Although most of the subject matter has appeared in *The Lancet* and other papers, the author has done well in collecting it and adding an original paper on Fibroid Pneumonia, and giving them, in this complete form, to the profession.

The chapter devoted to the histology of the bronchi is worthy of the most careful perusal, so that the pathology of their affections, which follow in the succeeding chapters, may be appreciated. Acute and chronic Bronchitis, Bronchial Asthma, and Bronchiectasis, are in themselves interesting subjects, but the author has added a charm to their study which keeps our attention from page to page.

In Part II, we have presented the Histology and Pathology of the lung-substance proper, embracing pneumonia in its various divisions.

The author dwells at some length on the nature, mode of origin, anatomical features, limitations, etc., of a chronic inflammatory disease, designated differently by a number of authors as "grey induration," pulmonary cirrhosis, fibroid phthisis, chronic pneumonia, etc. He

has studied very carefully the pathological lesions presented by these different chronic inflammations and finds that they present features very similar to each other. To avoid the confusion so prone to occur from attaching so many names to the same disease, he has called it Fibroid Pneumonia, from the pure pathologic types which it always presents. The whole chapter is a lucid and interesting description of the subject, and solicits most careful attention. A commendable feature is the great respect which is paid to the views of other investigators of this subject, and the author, in referring to them, mentions the salient points of each, which saves the busy pathologist, physician, and student much time.

The illustrations throughout the text, by the author, are well done, and carry a conviction, in themselves, that all which is unnecessary as explanatory to his subject is eliminated.

The volume is an excellent contribution to the study of pathology, and, from the various pulmonary lesions which it describes, of great value to the general practitioner.

J. W.

BOOKS RECEIVED.

THE PRACTICE OF MEDICINE.—By M. CHARTERIS, M.D.—J. & A. Churchill, London, 1891.

DISEASES OF THE NERVOUS SYSTEM.—By J. A. ORMEROD, M. D., Oxon ; F. R. C. P., Lond.—Phila. : P. Blakiston, Son & Co., 1892. 8vo; 343 pp.

L'ACTION HYPERCINÉTIQUE DE LA DIGITALE et son action antiphlogistique dans la Pneumonie.—By Prof. Dr. Z. PETRESCO, Bucharest (Bulgaria).

INTERNATIONAL MEDICAL ANNUAL, 1892. A Dictionary of New Remedies and New Treatment.—By Thirty-five Specialists, European and American; comprising a résumé of the therapeutic progress of the year. Tenth yearly issue. 644 pp. Illustrated.—E. B. Treat, New York. Price: \$2.75.

SURGICAL HANDICRAFT. A Manual of Surgical Manipulations, Minor Surgery, etc.—By WALTER PYE, F. R. C. S. First American Edition from the third London Edition. Revised and Edited by T. H. R. Crowle, F. R. C. S.—E. B. Treat, New York. 8vo. 600 pp. Price: cloth, \$3.00; leather, \$4.00; both net.

COMING BOOKS.

P. BLAKISTON, SON & CO., Philadelphia, have in preparation : Materia Medica, Pharmacy, Pharmacology, and Therapeutics. By WM. HALE WHITE, M.D., F.R.C.P., etc., Physician to and Lecturer on Materia Medica at Guy's Hospital; Examiner in Materia Medica Royal College of Physicians and Royal College of Surgeons, etc. American copyright edition, edited by REYNOLD W. WILCOX, M.A., M.D., Professor of Clinical Medicine at the New York Post-

Graduate Medical School and Hospital, Assistant Visiting Physician Bellevue Hospital, etc. To be printed in one compact volume.

RECENT PAPERS.

WHERE DENTISTRY LOOKS OVER into Oral Surgery. By G. Lenox Curtis, M. D.—Reprint from the *Dental Cosmos*.

A FLYING TRIP BY RAIL, from New York to California. By Stephen Smith Burt, M. D.—Reprint from the *Post-Graduate*, 1892.

FOUR CASES OF ORBITAL TRAUMATISM, resulting in immediate monocular blindness through fracture into the foramen opticum. On one of these cases the blow was over the left orbit, causing blindness in the right eye. By Peter A. Callan, M. D.—Reprint from the *Journal of the American Medical Association*.

THE RADICAL CURE of Confirmed Flat Foot. By Royal Whitman, M. D., M. R. C. S.—Reprint from the *New York Medical Journal*.

THE BICYCLE in the Treatment of Nervous Disease. By Graeme M. Hammond, M. D.—Reprint from the *Journal of Nervous and Mental Diseases*.

OBITUARY.

Dr. HIRAM HALSEY TICHENOR, aged 64, at his home in New Street, Newark, N. J., May 2. Dr. Tichenor was born in Newark. He studied at the University of the City of New York, graduating from the Medical Department in 1854; he was also a student on the assisting staff of Prof. GUNNING S. BEDFORD and Prof. S. VALENTINE MOTT. He began his practice of medicine in Newark forty years ago, and continued it uninterruptedly.

Dr. ALEXANDER MORRISON, aged 35, at his home, No. 109 Bloomfield avenue, Newark, N. J., May 1; from typhoid fever. He was born in Scotland, and had practiced medicine in Newark.

Dr. THOMSON BURTON, aged 80, at his home, in Fultonville, N. Y., May 5. He was one of the best known physicians in Montgomery County, and was prominent in Masonic circles.

Dr. ISAAC G. PORTER, at New London, Conn., April 30. He was born in Farmington in 1806, and was graduated from Yale College in 1826. He was graduated in 1833 from the Medical School of the University of Pennsylvania.

Dr. RUTSON MAURY, at St. Luke's Hospital, N. Y. City, May 5; of pneumonia. Dr. MAURY was born in North Carolina, in 1865. He graduated from the Col-

lege of the City of New York in 1884, and immediately entered the Bellevue Hospital Medical School, from which he was graduated at the head of his class in 1887.

Dr. CHARLES F. CLARK, aged 36, at his home, No. 114 Montague street, Brooklyn, N. Y., April 21. Dr. Clark was born at Wheeling, W. Va., and studied at Washington and Jefferson College, from which institution he was graduated in 1878. He received his degree from the College of Physicians and Surgeons of New York, in 1883.

Dr. LORENZO WILTON ELDER, at his home, Washington and Seventh streets, Hoboken, N. J., May 11. He was born in the town of Guilford, Chenango County, N. Y., April 15, 1820. In 1847 he was graduated from the New York College of Physicians and Surgeons.

Dr. JOHN P. VAN BIBBER, at Baltimore, May 5; from effects of a surgical operation. Dr. Van Bibber was born on January 15, 1850. He was a member of the National Neurological Society and an ex-member of the American Medical Association and of the Medical and Chirurgical Faculty of Maryland.

Dr. MYRON N. BABCOCK, aged 73, at Saratoga, May 22. Dr. Babcock was born in Sheldon, Vt. He began his medical studies in that State and completed them in New York City. He practiced medicine for half a century.

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FOOD-VALUE AND HEART-ACTION.

One of the arguments raised by Lady PAGET in her article in the *Nineteenth Century* for April, 1892, in support of a vegetarian diet, is the slower cardiac action in the vegetarian feeder, as compared with the more active heart of the animal-fed subject, to wit: "While the "meat-eater's heart has seventy-two beats "in the minute, the vegetarian's has only "fifty-eight; therefore 20,000 beats less "in twenty-four hours."

This statement is exceedingly interesting from the standpoint which has recently been taken in the articles on Food-Values, published in MERCK'S BULLETIN:

First of all the question is raised: What is the true difference between the vegetarian and the meat or animal diet?

Strictly speaking, both are mixed diets, that is, both are composed of proteid elements, fats, sugars, and mineral salts.

The vegetarian diet, however, contains a preponderance of sugars and starchy elements; both of which must be transmuted into a glucose-compound before they can be absorbed and utilized by the system.

The animal food-stuffs, to be sure, are composed exclusively of the two elements,

proteid and fat; but if milk be included in this diet, then a liberal allowance of sugar must be admitted as entering into the animal diet. As milk is so very largely used at all ages of life as an article of diet, this supposition becomes a general fact.

The vegetable diet, like the animal, contains proteid elements, fat, and sugar; but, in addition thereto, it has a large preponderance of starch, which must be converted into a soluble and diffusible glucose before it can be absorbed and made of any value to the system.

The percentage amount of proteid elements in many vegetable compounds is much larger than in any known kind of meat or animal food-stuff.

The proteid substances which are found in the vegetable kingdom, however, are known to contain more nitrogen atoms to the molecule than those of animal origin; and consequently the former must, in a measure, be de-nitrogenized by the digestive processes and converted into simpler forms, corresponding with the animal proteid, before they can be absorbed and utilized by the animal economy.

Therefore, in this simple transmutation process alone, the digestive functions are compelled to expend more oxygen and digestive energy upon the vegetable diet

than is expended upon the animal proteids. Consequently the vegetable proteid is less serviceable as a nutritive agent than the more simple compound derived from the animal kingdom. Constructive nutrition is apt to fall below par upon the vegetable compounds, unless a very liberal allowance of oxygen is granted to the system.

Comparing the values of the vegetable and animal fats,—it is found that animal fat is easily emulsified and largely absorbed, and supplies, by its oxidation, a large amount of heat and energy to the system. While the vegetable fat, on the other hand, is comparatively little in quantity, it is not easily emulsified and absorbed. But it is attacked by the steapsin of the pancreatic juice and converted into glycerin and soap, both of which are laxative in their nature, and not easily, if at all, absorbed. In this laxative function, the vegetable fat is of greater utility to the system than the animal; but, as regards its quantity and the yield of heat and energy, the advantage is so far in favor of the animal fat, that no comparison can justly be instituted between the two fats.

Comparing the sugars in the two classes of food-stuffs,—the milk-sugar is found to be more closely allied to that form of glucose which is capable of being absorbed by the entero-hepatic circulation, than are many of the forms of sugar that are found in the vegetable kingdom. Consequently the milk-sugar is more useful to the animal organism than sugars of vegetable origin; most of which call for an expenditure of oxygen and digestive energy to transmute them into a soluble and absorbable glucose,—which expenditure naturally reduces the vital activity. Molecule for molecule, or ounce for ounce, of this glucose,—the final yield of heat and energy to the

system is the same, no matter what the primary source of the glucose may have been.

The starches, on the other hand,—which are the only elements found in the vegetable food-stuffs that are not in the animal kingdom,—cannot be absorbed under their own form. They call upon the alimentary tract for oxygen and digestive ferments and an expenditure of energy by the system, to transmute them into glucose and render them available for absorption and for the production of heat and energy. All this taxes the vital forces of the system, and the final yield of heat and energy is very small as compared with that from the fat so abundant in animal food-stuffs. Moreover, they do not enter into really constructive metabolism; they are not actual tissue formers, but principally heat-producers.

Thus, it has been found in the study of food-values that persons fed upon a meat diet, composed exclusively of proteid elements and fat, are called-upon to expend the smallest amount of oxygen, digestive ferments and vital energy in making the food available for absorption.

When the animal food-stuffs have passed into the circulation, they require the smallest amount of oxygen to split them into their final excretory products; and at the same time they supply to the system the full amount of constructive material for nutritive purposes, and also yield the largest quantity of heat and energy of all kinds of food-stuffs thus far computed.

Now, with a full supply of nutritive material in the system, and the largest amount of heat and energy with which to stimulate or maintain the innervation of the heart,—it is but natural that the force and rapidity of the heart-action will be kept at a high standard, and that the amount of work accomplished daily will be

large. The individual who is fed upon a vegetable diet—no matter what substances are selected—even under the most favorable condition presents a different result, as shown in our studies on Food-values.

While it may be admitted that it is possible to keep up the full constructive nutritive supply upon a purely vegetable diet, it cannot be done upon the same expenditure of vital force as when using the animal food-stuffs. Even with the best possible vegetable food-stuff, the total yield of heat and energy is always less than that developed out of the meat-diet. This—together with the fact that a large amount of oxygen and digestive energy must constantly be expended by the digestive organs in transmuting the proteids, sugars, and starches contained in the vegetable compounds into an absorbable condition in which they can be made available by the system—is in itself a constant drain upon the animal vitality.

This larger tax imposed on the digestive system—combined with the fact that the heat-and-energy-producing power of the vegetable is proportionally less than that which can be obtained from an equivalent amount of meat—leaves the system constantly deficient in heat and energy.

Consequently, there is not sufficient heat and energy furnished by the vegetable diet to properly stimulate and maintain the innervation of the heart. Therefore,—even if its nutrition be well enough sustained,—it has not the inherent stimulus to do the same amount of work as upon the animal diet.

It is, however, as yet an open question, even, whether the *nutritive* supply obtained from the vegetable diet be sufficient to sustain the heart in performing more active work; while it may be quite

sufficient *for the smaller* amount of work actually accomplished as above shown.

Recapitulating these observations,—it is apparent that the individual fed upon a meat diet, composed exclusively of proteids and fats, expends the least amount of oxygen and digestive energy in making the food-stuff used available to the system. At the same time the highest nutritive standard is maintained, and the largest amount of heat and energy produced to innervate the animal organism. As a natural sequence, both the force and frequency of the heart's action, 72 beats per minute, referred-to by Lady PAGET, are sustained at this normal standard, and the working powers of the whole system are at their fullest capacity.

Thus, the recorded clinical facts, as noted by Lady PAGET, and those which have been evolved as the result of chemical and physiological study of the food-values, are found to closely correspond.

The inferences drawn are, however, entirely different.

On the one hand, Lady PAGET argues that the slowly-acting heart, *irrespective of its force*, may be taken as proof that the vegetable food is the most valuable; on the other hand, the close study of the chemical and physiological side of the question proves that the vegetarian heart is not only slow, but also *comparatively weak* in its action at the same time, because of the greater expenditure of vital energy in utilizing the vegetable compounds, and the relatively smaller return of nutrition, heat, and energy to innervate the system and stimulate the heart to action.

The value of a well-selected animal diet, together with well-directed therapeutic agents, is most strikingly illustrated by the rapid improvement in the strength and rhythm of the heart's action,

as recorded in the article upon Valvular and Neurotic Affections of the Heart, on page 362 of our present Number.

MERCURY AND THE LIVER.

The action of the mercurials upon the hepatic function is exercised in three successive, characteristically distinctive stages, to wit: as stimulants, as cholagogues, and as depressants.

As the mild chloride, or calomel, possesses all these qualities to a marked degree, it is perhaps the best example by which to elucidate the complete action of mercury upon the hepatic and digestive functions.

The blue mass and the gray powder act in the same manner; but, if anything, are a little less active.

The bi-chloride has a similar action; but its more irritating properties make it less valuable, or even useless, as a cathartic principle. Still it can be used as a powerful hepatic stimulant, and as an adjunct to the cholagogue function of calomel.

The exact *modus operandi* by which mercury in any form produces the wonderful results upon the system that have been attributed to it for ages, has always been more or less in doubt for the lack of a logical explanation; yet the most skeptical, after watching the effects of a few doses of this drug upon the human system, cannot deny the power and utility of mercury.

Taking the stand that the inorganic compounds are not decomposed within the animal organism, no time need be wasted in speculation regarding the decomposition of any of the mercurials into other compounds.

How then shall the action of mercury and its compounds be explained? Calomel, for instance, is almost insoluble;

consequently it in itself is comparatively non-irritating to the intestinal tract. At the same time it is known to be one of the most active cathartic compounds of mercury.—Two almost contradictory propositions!

The cholagogue action of calomel cannot be explained by any direct irritating action which it can produce upon the alimentary tract,—through the increased peristalsis, by reflex irritation, causing an increased flow of bile.

This non-irritating character of calomel is just what gives it its chief power. Passing along down the alimentary tract without producing irritation, it is steadily absorbed into the entero-hepatic circulation and carried up to the liver. At this point of the animal economy, the mercurial appears to act like a foreign body, and the hepatic cells, by their selective action, pick up the little particles of calomel from the blood, and eject them into the capillary bile-ducts.

In accomplishing this task, the hepatic cells are called upon to perform more work; and if the amount of calomel passed through the liver is small, its action is simply to stimulate the organ to a little greater activity. For a time the hepatic cells secrete a little larger quantity of bile, and such as has a little better quality. Up to this point the calomel has only been stimulating and physiological in its action.

If now the calomel is administered in larger quantities,—either by frequently repeated small doses or in one large dose,—the eliminating action of the hepatic gland is greatly augmented. At the same time the protoplasmic elements which constitute the hepatic cells are stimulated, by the passage of this foreign body through their substance, to a more active production and elimination of the bile

acids. When sufficient calomel has reached the liver to produce this copious flow of the bile acids, the acids are discharged into the capillary bile-ducts more rapidly than they can react upon the alkaline phosphates or carbonates and form the normal and neutral bile-salts.

When this hyper-secretion of the bile acids is established, a cholagogue action is developed. This action, however, can only be temporary in character, because the protoplasmic vitality will in a comparatively short time be exhausted.

After this excessive production of the bile-acids and their discharge, together with the calomel, there is a period of protoplasmic exhaustion, in which the bile-producing function of the liver is held in abeyance.

Viewed in this light, calomel and its class of mercurials may be stimulating, cholagogue, and depressing in their action upon the functions of the hepatic gland,—one condition following in quick succession after the other.

The rapid intestinal peristalsis and frequent discharges from the bowel are not the direct result of the mercurial action, but a *secondary effect*, which has been brought-on by the irritating properties of the bile-acids, so copiously discharged into the intestinal canal,—as just shown. This fact is established by the lack of cathartic action by calomel in cases of the occlusion of the common bile-duct; and, furthermore by the counter-test that where bile acids are administered medicinally, a brisk cathartic and cholagogue-like action is at once established.

This hyper-secretion of the bile acids and its consequent effect upon the intestinal tract is not in any sense a physiological action, but it is strictly a pathological process. But by developing this abnormal condition in the functional activity of

the hepatic gland, the liver-cells are stimulated to perform an abnormal amount of work, often vicarious in its nature, and by which the cells are empowered to expel many abnormal and by-products from the system,—a task which in their normal condition they are absolutely unable to perform. In this manner Nature rids herself of many foreign and offending substances which, if allowed to remain and multiply within the system, would in a short time, destroy the animal vitality,—a result too often seen in cases imperfectly treated.

The period of inaction, which is imposed upon the hepatic cells as a sequel to this excessive action, gives the protoplasmic elements a chance to rest and to imbibe a more serviceable nutritive pabulum,—thus augmenting their nutritive activity and enhancing their functional vitality.

When the hepatic cells again resume their physiological work, they are in a condition of high nutritive tone; and consequently the secretory and excretory work of the liver is more perfectly effected.

The intestinal and hepatic transmutation of the food-elements is more perfectly accomplished; and as a natural sequence all the nutritive processes of the body are intensified; secretion and excretion in general are more perfectly performed; and the animal vitality is raised to a higher standard.

If the system has been poisoned by any form of microbic or ptomainic toxin, or is the seat of any inflammatory action,—toxic or otherwise,—the organism is, by the above-described processes, placed in the best possible condition to destroy the ætiological factors and remove the resulting pathological processes, and thus restore everything to a normal condition.

By a somewhat similar physiological action the well-known antiphlogistic power of the mercurials can be explained.

Following this method of action for the mercurials,—ptyalism and all that class of toxic symptoms produced by mercury and its compounds can be rationally explained. The same reasoning also shows clearly that the size of the single doses has little if anything to do in determining the liability to mercurial salivation. If from any cause the hepatic cells are inactive, and thus fail to respond to the presence of the mercurial salt and to eliminate it as speedily as it reaches the hepatic gland, then the mercurial will pass over into the general circulation; where finally the salivary glands will attempt to perform the work of elimination that

should have been accomplished by the liver cells.

In like manner, when the calomel is given too freely, or when opium is given to check the cathartic action, the hepatic cells either become exhausted from over-taxation; or they are retarded in their action by the opium; and then the mercurial passes into the general circulation. Thus, again, the toxic symptoms with salivation will be produced.

So long, however, as the hepatic cells retain their selective and excretory activity, it is absolutely impossible to develop the toxic symptoms of mercury. The use of enormous doses may become the cause of exhausting the hepatic cells, whereupon poisoning will, of course, rapidly ensue.

MEDICAL REPORTS

TO "MERCK'S BULLETIN."

The continuation of Dr. KORNITZER'S essay on the ELECTROLYTIC TREATMENT OF "TUBERCULOSIS" (begun in our *June Number*), will follow in our next.—[ED.]

EXPERIMENTAL RESEARCHES INTO MERCURIAL GASTRO-ENTERITIS.

By P. de MICHELE, M.D.,

Of the INSTITUTE OF PATHOLOGICAL ANATOMY at the ROYAL UNIVERSITY OF NAPLES (directed by Prof. O. VON SCHRÖN).

GASTRO-ENTERIC LESIONS FROM MERCURIALIZATION "PER OS."

The grave alterations of the gastro-enteric apparatus consequent upon the introduction of relatively large quantities of mercurial preparations in general, and more particularly of corrosive sublimate, have long been known, both from the data furnished by clinical experience (violent vomiting; diarrhœa, sometimes bloody; racking tenesmus), and from the anatomical lesions observed in the autopsy of persons who died of acute mercurial poisoning (intense hyper-

æmia, eschars, ulcerations, and sometimes also perforations.)

It has been further ascertained that not only in acute mercurialism and the mercurial poisoning which is slowly induced by repeated exaggerated doses, but also from prolonged administration of very small doses of mercurial preparations, very often a chronic catarrh supervenes in the digestive mucous membrane, which has hitherto been uniformly ascribed to the *direct* irritating action of the remedy on the walls of the stomach and the intestine.

For that reason, the majority of therapeutists have maintained, in the hope of averting such accidents, that the ingestion of mercurials should take place either during meals or immediately after them. Notwithstanding such precaution, however, and despite the strict regimen with which it always is combined, the noted symptoms of irritations, and especially the diarrhœa, have nevertheless appeared in a large number of cases.

To alleviate these local disorders, recourse was then had to the addition of small quantities of opiates, chlorides, or albumen. In spite of these expedients, cases have occurred in which the intestinal disorders persist not only, but also induce gastric complaints (inappetency, pyrosis, eructations, acidity, etc.). Hence, physicians have universally deemed and still deem it advisable to abandon the internal administration of mercurials for some other methods of exhibition (injection, inunctions, etc.), which until the present day have been held incapable of provoking disorders in the digestive functions.

DIGESTIVE TROUBLES LIKEWISE FROM THE OTHER MERCURIAL METHODS.

For some years, up to the present time, I have observed, however, that a great number of persons affected in various degrees with dyspepsia, often obstinately resisting every remedy, had at some more or less remote period previously been subjected to long and intensive mercurial treatment; and so far as this had been effected by way of the stomach, the sequel was easily explained. But, in continuing my researches, I ascertained that a great number—and, indeed, the majority—of the patients had been subjected only to a long series of *hypodermic* or *parenchymatous injections* of sublimate. Then, doubting rather strongly that this fact was due to a mere coincidence, I began to ask myself if the gastric complaints which sometimes follow upon tedious mercurial cures, do always and exclusively depend on the *direct* irritating action of the remedy as administered by the way of the stomach, or if they would also arise when the remedy is introduced through another channel.

THE CIRCULUS VITIOSUS OF STOMATITIS.

Indeed, without taking into account clinical observation, a single fact ought to be sufficient to lead to such a course of thought. It is generally recognized at present that—among the chief disadvantages arising from prolonged treatment with mercurials—the most important, on account of its frequency, is stomatitis; which does *not* represent, as some believe, only the index of a general dyscrasia consequent upon

the introduction of large quantities of mercurial salts; but is, also, a consequence of the abundant elimination of the mercury by the salivary glands. Although stomatitis at the present day, thanks to the methods now at our disposal, is more rare than in the past, yet it cannot be denied that it does appear with a certain frequency. On the other hand, even when there are no traces of stomatitis, no physician will be so bold as to doubt, after the positive researches of SCARENZIO, RICORDI, KOPP, OHEL, etc., that the saliva is one of the principal vehicles of elimination of mercury from the organism. Evidently, therefore, the mercury, no matter how administered,—and without considering its passage through the digestive apparatus,—will reach, by means of the lymph-current, the saliva in the mouth, thence pass into the stomach, and then go through the same *circulus vitiosus* several times more, until it is entirely eliminated by the other excretory passages.

DO THE ENDERMIC AND HYPODERMIC METHODS INSURE IMMUNITY TO THE GASTRO- INTESTINAL TRACT?

Considering this,—what advantages will result for the gastro intestinal tract, for instance, from the endermic or hypodermic method, as against internal administration? To this question respecting the choice of method is intimately attached that relating to the form of preparation to be employed; for if, in a particular case, one method, rather than another, can affect the nutrition and function of an organ,—with more right will the nature of the preparation employed exert such an influence; particularly when brought into direct contact with the organ itself.

ANIMAL EXPERIMENT A SUFFICIENTLY CONCLUSIVE DEMONSTRATION.

Before passing to the results of my experimental observations, I wish to say here I myself admit that the action of mercury in general on the human organism affected with syphilis might be different from that exerted on a rabbit or a mouse free from such disease. The scope of my researches, however, is such as to allow

me to draw conclusions also from experiments made on any animal. In fact, if in a rabbit or in a mouse, for instance, corrosive sublimate, given hypodermically, produces lesions in the stomach, which are not observed in the same animal treated mercurially by other methods; and if, in employing *the same* method of introduction, one preparation is better tolerated than another, why should it not be admitted that similar differences may occur in a syphilitic person?

THE QUESTIONS PROPOSED FOR SOLUTION.

The questions which I propose to solve are these:

1.—Which method of mercurial treatment is the least injurious to the gastro-intestinal apparatus?

2.—The methods of employment being equal, which preparation of mercury is the least offensive to the same tract?

3.—In what do the lesions produced in the stomach and of the intestine consist, histologically?

It is, of course, understood that I have borne in mind, in administering mercurials to animals, never to deviate too much from the intensity, duration, etc., of the treatments ordinarily supported by man. This is what I have observed:

SUMMARY OF MY OBSERVATIONS:

A.—Rabbits treated with daily *injections* of 20 centigrammes [3 min.] of a 1:200 solution of *sublimite* died after 17–20 injections; those treated with injections of 10 centigrammes [$1\frac{1}{2}$ min.] of the same solution, died after 40–43 injections. In both classes, but especially in the latter, the alterations in the gastro-enteric apparatus, found at the autopsy, were as follows: The stomach dilated, the internal surface of the stomach and the intestine rather hyperæmic and covered, particularly that of the stomach, with thick mucus; on the posterior aspect of the stomach, all along the greater curvature, several erosions, some as large as a pin's head, others from the size of a lentil to that of a cent, with irregular contours, red bases, and edges flattened perpendicularly.

B.—Rabbits to which I administered, *per os*, doses of $\frac{1}{2}$ –1 milligramme [$\frac{1}{120}$ – $\frac{1}{60}$ grain] of *mercury prot-iodide* in gummy emulsion,—either daily or every other day,—died in 20–27 days, and at the autopsy presented the same lesions, although somewhat more marked in the small intestine than in the stomach.

C.—Those treated *per os* with daily doses of half a milligramme of corrosive sublimate in the form of *Van Swieten's solution* (1:1000), diluted with 5 grammes [80 min.] of distilled water, died in 20–23 days, presenting in the stomach and in the intestine the lesions previously indicated, but in a more advanced degree.

D.—Rabbits treated daily, *per os*, with doses of 1 – $1\frac{1}{2}$ milligrammes [$\frac{1}{60}$ – $\frac{1}{40}$ grain] *yellow oxide* of mercury, suspended in sweetened water (5 grammes), died after 31–40 doses, and at the autopsy I met with nothing but the rubescence of the gastro-enteric mucous membrane, which was besides heavily covered with mucus—I obtained identical results by daily administering, *per os*, $\frac{1}{2}$ –1 milligramme [$\frac{1}{120}$ – $\frac{1}{60}$ grain] of *albuminate* of mercury.

E.—In rabbits to which I daily applied a *hypodermic* injection of $\frac{1}{2}$ milligramme [$\frac{1}{120}$ grain] of albuminate of mercury, and which died after 22–25 injections, I found,—besides a light degree of gastrectasis, and the general rubescence, and the production of mucus as above mentioned,—three or four erosions of the character described above, along the greater curvature of the stomach.

F.—Finally, rabbits treated with hypodermic or parenchymal injections of calomel in dose of ordinarily 1–3 milligrammes [$\frac{1}{60}$ – $\frac{1}{20}$ grain] every three, four, or five days, and that died or were killed in a period more or less remote from the beginning of the experiments, showed, at the autopsy, hardly perceptible marks of gastric disorder; while other rabbits, submitted to the same treatment and also to the internal use of iodides (5 centigrammes [$\frac{3}{4}$ grain] each day) died much sooner, and also presented more advanced changes in the digestive apparatus, especially in the stomach.

CONCLUSIONS AS TO THE RELATIVE INNOCUOUS-
NESS OF DIFFERENT METHODS AND
PREPARATIONS.

Consequently, whatever be the mercurial preparation to which an animal in the laboratory (for instance, a rabbit) is subjected for a shorter or longer period of time, either by the internal, hypodermic, or parenchymal method, the gastro-intestinal tract will more or less intensively, but inevitably, suffer the consequences. On the basis of these experiments, it may be safely affirmed that the methods of treatment most harmful to the integrity of the digestive tract, enumerated in the order of their injuriousness, are as follows :

a.—Corrosive sublimate and mercury prot-iodide by the way of the stomach.

b.—Injections of sublimate.

c.—Injections of mercury albuminate.

The most innocuous, at least to judge from the macroscopic lesions, which as we will see, are confirmed by histological examination, are :

aa.—Injections of calomel, SCARENZIO'S method.

bb.—Internal administration of the albuminate and of the oxide of mercury.

THE EFFECTS OF VARIOUS METHODS AND OF
VARIOUS PREPARATIONS ARE FOUND TO
BE INTER-DEPENDENT.

In the choice of a mercurial treatment, it is evidently not possible to separate the curative method from the nature of the preparation; thus, in reality, prot-iodide of mercury or corrosive sublimate in simple aqueous solution given internally, will not be so well endured as hypodermic injections of the same remedy; the albuminate or the oxide administered internally, on the contrary, act less injuriously on the functions of the stomach and the intestine than the albuminate given hypodermically under equal conditions of dosage and duration of the treatment.

STRICT DISTINCTION BETWEEN TOPICAL AND
CONSTITUTIONAL ACTION.

At first sight this fact appears paradoxical; but—besides the results of the experiments which confirm it—in considering the matter more closely, a rational explanation can be

found without the aid of experimental data. There is nothing extraordinary, indeed, in that the introduction of a simple solution of sublimate into the stomach produces local disturbances which are not observed on the administration of the albuminate; because in the latter case, the mercurial preparation arrives in the digestive apparatus furnished with those harmless properties which in the absolute sublimate or the prot-iodide are obtained only at the expense of the gastric mucous membrane. It is now admitted that a mercurial preparation, before it is diffused throughout the organism, must be transformed into soluble and absorbable albuminate. Furthermore, it cannot be denied that the absorption of any remedy by the stomach is very limited as compared with that by the subcutaneous tissues; consequently, a certain quantity of the mercurial given internally will doubtlessly be lost, by being transformed into sulphide and eliminated with the fæces.

But with the preparations possessed of irritating properties,—such as the sublimate,—the local effects depend more upon the direct contact than upon the quantity introduced into the organism; whereas in using a remedy which, like the albuminate, is not capable of producing accidents by simple contact, it is natural that the effects dependent on the quantity of the remedy absorbed, will predominate over those relating to the local action of the same. In other words, the albuminate introduced into the stomach must act less injuriously than the sublimate, the albuminate, etc., administered by hypodermic injection, because the quantity absorbed by this latter method is greater than that introduced by the internal method. Finally, injection of sublimate ought to be less harmful to the gastro-enteric apparatus than the internal administration of the prot-iodide or of sublimate; since in these preparations the most notable sufferings are produced by the contact of the remedy itself.

THE COMPARATIVELY GREAT INNOCUOUSNESS
OF CALOMEL EXPLAINED.

Now, what happens with injections of calo-

mel? The case is quite different with them; for, although the quantities which can be introduced into the subcutaneous connective tissue, or into the parenchyma of the muscles, without provoking any general disturbance may be very large in comparison with the quantities of other salts generally employed for injections, the absence of disorders in the gastro-enteric apparatus makes it evident that the absorption of the remedy is very slow, because the transformation into albuminate is very slow (as I have demonstrated experimentally in another report).

HISTOLOGICAL INVESTIGATION.

Apart—I repeat—from all theoretical considerations, the constant results of the experiments made are such as to leave no doubt regarding the accidents provoked in the gastro-enteric apparatus by every preparation of mercury. Histological examinations of the stomach and intestine of various animals have been made, not only in a fresh state, but also in a dry condition—after fixation, hardening, and staining of the organs.

In the first instance, small sections of the stomach or the intestine from portions in which the lesions were most marked, were made in a congealed condition, by means of the microtome, and then examined in glycerin. The notable abnormalities observed were: absence of epithelium; and at some points partial destruction of the superior extremity of the glands, already noted at the macroscopic observation; a moderate quantity of leucocytes in the *tunica propria* of the mucous membrane, and, finally, a variable number of granules more or less disturbing the transparency of the protoplasm of the glandular cells. In all the experiments, the alterations found in the small intestine were identical with those of the stomach, and showed the same degree of progress. In the large intestine it was impossible to find any lesion.

THE PREVAILING FORM OF LESION FOUND TO BE FATTY DEGENERATION OF GLANDULAR CELLS.

There remained to be determined the nature of the granules contained in the glandular cells and which could represent but an embryo of abnormal swelling or fatty degeneration of the

latter. Now, introducing one or two drops of acetic acid under the cover-glass, the aforesaid granules did not dissolve, so that they appeared to be composed of small drops of fat. And, in fact, in other preparations where the sections with the same indications were treated with 1-% solution of per-osmic acid, the granulations lost their bright appearance and assumed an intensely black color. The signs of the incipient fatty degeneration were still more perceptible in small sections treated with Flemming's fixing-mixture and subsequently colored with Roby's safranine. The examination of these pieces did not admit of any further doubt, since the cells of the gastric or intestinal glands presented—particularly in or near the erosions—rather large accumulations of very small granulations of an intensely black color,—granulations which assumed the proportions of real drops, scarcer but larger, in pieces fixed by Müller's solution and then treated with a 1-% solution of per-osmic acid. This fact is not at all surprising, since, as is known, it is a histological principle that small drops of fat, in the elements of a tissue, run together into larger drops when the tissue is placed in Müller's solution.

I ought to add here, that the intensity and extension of the alterations in the gastro-enteric mucous membrane, as determined by histological examination, corresponded perfectly with those observed by the naked eye. Thus, in the stomach as well as in the small intestine of rabbits treated, for instance, with mercury prot-iodide, the macroscopic and microscopic lesions were graver in degree, but yet of the same qualitative nature as those observed in rabbits treated with other salts of mercury or by different methods.

Thus, the prevailing lesion arising from the prolonged use of mercurials, and more particularly from certain of them, consists in a fatty degeneration of the glandular cells, rather acute in its course, without any concomitant traces of grave inflammatory disorders,—at least, if the hardly perceptible infiltration of the *tunica propria* with leucocytes be not considered as such.

ANALOGIES WITH ACUTE PHOSPHORUS-POISONING.

An analogous condition has been observed in acute poisoning by phosphorus; and it has been attributed by Dr. SENFTLEBEN to a gastritis induced by the direct action of the phosphorus after its transformation into phosphoric acid, which is possessed of considerable causticity.

Without entering here into a discussion of the fatty degeneration of the glands of the gastric mucous membrane by acute phosphorus-poisoning, it may be mentioned that the hypothesis of Dr. SENFTLEBEN has latterly been disproved, for the reason that pieces of phosphorus introduced in the peritoneum or into the subcutaneous tissue are not capable of producing local inflammatory processes; and because such organs as the heart, the kidneys, the liver, etc., which do not come into direct contact with the substance, are also affected by fatty degeneration in acute poisoning by phosphorus. Thus, the results in the latter instance are identical with those in slow mercurialism—though not in an equal degree—at least, as regards the stomach and the intestine,—to wit: fatty degeneration of all the elements of the gastric and intestinal membrane, without any trace of inflammation in the vicinity.

ALL MERCURIAL METHODS AFFECT THE DIGESTIVE TRACT, BUT NOT OF NECESSITY TOPICALLY.

Prolonged treatment with mercurials is perhaps not free from dangers for the other organs too; but it should be noted here that the specific treatment in general, and any methods employed in special cases, are capable of provoking gastro-enteric disorders, the nature of which amply explains the resistance of the disease to all therapeutic intervention. It is well, also, to remark that the lesions of the stomach and of the intestine after long-continued treatment with mercurials *cannot*—any more than can those observed in acute phosphorus-poisoning—be always and exclusively assigned to the *local and direct action* of the remedy used.

COMPARATIVE REVIEW OF THE PREPARATIONS AND METHODS TESTED.

I shall now present, in descending order, the methods and preparations with which I have experimented on rabbits—commencing with those that have not caused any lesions, and ending with those capable of speedily provoking a grave and rapidly progressing form of fatty degeneration in the glands of the gastro-intestinal mucous membrane.

I.—Hypodermic injections of calomel.

II.—Albuminate of mercury, by the mouth.

III.—Injections of mercury albuminate.

IV.—Injections of corrosive sublimate.

V.—Mercury prot-iodide.

VI.—Van Swieten's solution, or simple solution of sublimate, by the mouth.

THE IDEAL FORM OF MERCURIAL TREATMENT FOUND.

It appears from this, that the ideal form of treatment would be that of SCARENZIO (hypodermic injections of calomel); but in cases where it cannot be used, recourse should be had to the albuminate of mercury, by the way of the stomach.

THE QUESTION REGARDING INUNCTION, SOLVED BY ANALOGY.

Owing to lack of experimentation, there is here a *gap*, as regards the determination of the position in the above scale, of *cutaneous absorption*, in treatment by inunction; but it is easy to understand why such applications in rabbits are beset with difficulty; and, on the other hand, if we keep in mind the known manifestations of mercurial *stomatitis* following the inunction treatment, we must admit the conclusion that its effect on the digestive tract differs little or none from that of injections of sublimate.

12 Vico 1°, Montesanto, Naples, Italy.

IODINE TRI-CHLORIDE has been recommended by Dr. PFLÜGER as an *ophthalmologic antiseptic*, in 1:5000 solution for ordinary use, and in 1:2000 or 1:1000 solution where more energetic action is required (as infectious lesions of the eye, incipient panophthalmia, etc.).

TOPOGRAPHICAL STUDY AND TREATMENT OF VALVULAR AND NEUROTIC AFFECTIONS OF THE HEART.

By **WILLIAM C. GUTH, M.D.**,

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In presenting this paper the writer claims nothing for originality, but endeavors to place in a comprehensive form a practical method of localizing cardiac murmurs, and discriminating between the commoner forms of valvular lesion generally grouped under the terms Stenosis and Insufficiency; also, to speak in brief of a few of the drugs employed as cardiac tonics with reference to their application in certain forms of cardiac affections, and the beneficial results to be derived from the administration of the same when used with a comprehension of their physiological action.

During the writer's service in the department of Clinical Medicine and Pathology at the NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL, a variety of cases of valvular affections of the heart presented themselves for treatment, and the opportunities for observing the course of such cases in a direction approaching the re-establishment of normal conditions have been manifold and instructive. In the course of this paper a brief history of one case will be cited, illustrative of the beneficial results obtained after the administration of appropriate drugs.

TOPOGRAPHY OF HEART-MURMURS AS PROJECTED ON CHEST-WALL.

In a series of lectures delivered some months ago at the NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL, Dr. WILLIAM H. PORTER explained in detail the localization of valvular lesions; the transmission of the murmurs produced; and, by reference to topographical charts, their projection on the chest-wall;—and it may not be amiss at this stage,

for the purpose of elucidation, to refer to those portions of the chest-wall over which are heard, most distinctly, murmurs produced in Stenosis and Insufficiency of the aortic and mitral valves.

In the case used for illustration, Fig. I, A. D. comprehends a circular area, the centre of which is over the second right intercostal space



FIG. I.

at its junction with the sternum; and it is at this portion of the chest-wall that a murmur, dependent upon a stenosis involving the aortic segments, is heard with greatest distinctness at the moment of ventricular systole.

A. I., in the same figure, represents a circular area the centre of which is over the third left intercostal space at its juncture with the sternum; here is heard with greatest intensity a murmur dependent upon insufficiency of the aortic valve. Such a murmur is diastolic in character. It is also transmitted, and may be heard with diminishing intensity, in a direction

downwards toward the root of the sternum and in the vicinity of the apex-beat of the heart.

M. D. is the area over the juncture of the fourth costal cartilage and fourth rib on the left side of chest-wall. Within this area a diastolic murmur, indicative of stenosis of the mitral segments, is heard with greatest intensity. This murmur is not transmitted.

M. I. includes the area over the region of the apex-beat of the heart. Here is most distinctly

heard a systolic murmur in insufficiency of the mitral segments; this murmur is also transmitted around to the left and is lost in the axillary region. It is also heard behind and to the left, and may be heard, with greatest intensity, midway between the eighth dorsal vertebra and the angle of the scapula on the left side of the vertebral

column (see Fig. II) M. I.

At A. D., also represented in Fig. II, is heard the transmitted murmur of a stenotic affection involving the aortic valve. This area is over the lower border of the fourth dorsal vertebra, slightly to the left of the median line of the back.

To recapitulate in brief, aortic indirect and mitral direct murmurs are both heard over the anterior aspect of the chest and are practically not transmitted; with the exception of the aortic indirect, which may be heard with diminishing intensity in a direction toward the apex of the

heart, and is often heard of normal intensity at the xyphoid region of the sternum. The direct aortic and the indirect mitral murmurs are both widely transmissible, and if of sufficient intensity may be heard over both anterior and posterior aspects of the chest-wall.

By this topographical method for studying the cardiac murmurs, we find that the sounds, heard over the two extreme circles A. D. and M. I. upon the anterior surface of the chest,

are always synchronous with, or occur as the result of, the ventricular contraction. They are commonly described as systolic murmurs. The sounds, heard over the two intermediate circles A. I. and M. D., are confined to the diastolic period of the heart's action; that sound, heard nearest the base of the heart, is developed at the be-



FIG. II.

ginning of the diastolic period; and the one heard nearest the apex-beat is developed at the end of the diastolic period;—the latter being sometimes called presystolic or auriculo-systolic. The two extreme or systolic murmurs are the only abnormal cardiac sounds which are heard posteriorly. It is also strikingly noticeable that they occupy relatively the same positions (superior and inferior) on the posterior aspect of the chest as they do anteriorly.

Having, then, a clear conception of the localization of murmurs, the mechanical causative agents in the production of the same, the con-

sequent hypertrophy and dilatation of the ventricles of the heart (if that stage have been reached); and a thorough appreciation of the existing mechanical difficulties to be overcome, as also of the regularity or irregularity of the heart's action, its state of nutrition, and the secondary systemic manifestations as occasioned by valvular lesions;—we are in a position to treat each case according to its physiological demands.

To cite

A CASE IN POINT,

—C. C., colored, age 47, occupation porter, presented himself at the clinic with the following history: Twelve years ago he developed an articular rheumatismal attack, which persisted with exacerbations for about six months; then, apparent recovery resulted; but about two months later slight swelling of lower extremities was noticed by the patient; at the same time disturbances of a dyspeptic nature manifested themselves. This condition persisted until about four months ago, when patient began to complain of dyspnoea and a general feeling of soreness in abdominal region. Sought advice, and remained under treatment for several months, until he presented himself at the clinic (March 26). Here it was learned that the patient had been taking digitalis since the past three months, and still his condition grew worse.

PHYSICAL EXAMINATION

revealed the following: Extreme dyspnoea, respiration hurried and shallow, face anxious, marked oedema of the lower extremities and abdomen. Abdominal distension marked, and parietes very sensitive.

Area of cardiac dulness increased, apex of heart displaced to the left and somewhat lower than normal. Apical impulse weak. Heart action rapid, feeble and at times intermittent. Over the second right intercostal space at its juncture with the sternum (see Fig. I, A. D.), at the moment of ventricular contraction a distinct blowing murmur was heard; a second murmur directly following the one just described, of a less intense character, was present

and heard with greatest distinctness over the area A. I. (see Fig. I). The first murmur could also be heard readily on the posterior aspect of the chest over the area A. D. (Fig. II). No murmurs referable to lesions involving the mitral segments could be distinguished. A distinct "shot"-pulsation was apparent in the larger vessels at the root of the neck.

Examination over the pulmonary area practically negative, with the exception of the short inspiratory and expiratory efforts, and the presence of a few moist râles.

Urine,—light colored, sp. gr. 1015, highly charged with albumin; no casts or blood cells.

Abdomen,—universal tenderness, oedema and marked sensitiveness over hepatic region. No hepatic enlargement.

DIAGNOSIS:

The primary lesion in this case was unquestionably an incompetency of the aortic valve, with an atheromatous condition of the aortic semilunar segments, which caused an obstruction to the exit of the blood from the left ventricle. As a result of the general disturbance in the circulation, together with the evidence of indigestion and malassimilation, the liver and kidneys had consequently undergone degenerative changes of a temporary character; as evinced by the condition of the urine.

TREATMENT:

Digitalis, which the patient had been taking for months, was immediately discontinued. Fluid diet ordered (*proteids chiefly: milk and eggs*). To correct the existing gastric and hepatic disturbances, to relieve the alimentary organs of their engorged condition, and to favor a more perfect approach to the proper elimination of excretory products through the kidneys,—the following, in the form of capsules, was administered (which, together with the restricted diet, was considered indispensable for improvement in general nutrition), viz.:—

Fel. Bovis insp. et purific.	3 i.
Ext. Colocynthis comp.	gr. xxx.
Strychninæ Sulphatis	gr. i.
Caffeinæ Hydrochlor.	3 iss.
Ext. Aloes.	gr. xxx.

Ext. Taraxacigr. xlv.

M. et ft. Caps. gelat. No. XXX.

Sig.: Una t. i. d.

The following as a cardiant, (*) viz.:

Tr. Opii Deodor. }	.....gr. xlv.
Tr. Nuc. Vomicae }	.....aa 3ii.
Tr. Belladonnæ.....	3iss.
Tr. Gentianæ comp.....	ad 3iii.
M. D. S. 3i q. 3 hr.	

RESULTS.

One week later the patient reported for observation, and in that short time a marked change for the better had already taken place. Œdema had to a great extent disappeared; dyspnœa was less marked; there were no distressing gastric symptoms; the alimentary evacuation had been good; the quantity of albumin in the urine was much diminished; the heart's action approached a condition towards regularity in rhythm and frequency.

The above-mentioned line of treatment was continued, and within three weeks the entire aspect of the case was changed;—there was marked improvement in every direction. No œdema whatever persisted, there was total absence of dyspnœa. Urine passed in considerable quantities and no trace of albumin present; the composition of the urine being normal. The change for the better was so marked that the patient was able to again resume work, experiencing no difficulty whatever. The heart's action, which had been irregular, laboring, and tumultuous, was now one of good rhythm and regularity. While the aortic lesion had not been completely removed, a compensating condition had been developed by the appropriate diet and medication; so that the mechanical function of the heart was being perfectly performed.

ANALYSIS.

It is freely admitted that the mere withdrawal of digitalis would to a considerable extent have allowed of a change in the character of the heart's action to one of better quality; for certainly the condition of the individual was one to an extent dependent upon

digitalis cumulation; still, it is claimed that without the employment of appropriate cardiants the progress towards such rapid and marked improvement could not have occurred.

ABUSES OF DIGITALIS MEDICATION.

It may be well to speak at some length with reference to digitalis and its promiscuous use. It seems to me;—and I appeal not to a vivid imagination, but to those opportunities of observation I have chanced-upon in hospital, dispensary and private practice;—that this drug is often employed regardless of any idea what definite results are to be obtained from the administration of the same. How frequently do we see instances in which disturbances consequent upon cardiac affection are to be alleviated; and the prescriber,—although cognizant of the fact that a lesion does exist, be it a mitral affection or an aortic, or perhaps an irregular heart-action or one weak in character,—having clapped his ear upon the victim's chest, holds momentary communion with himself, and down goes digitalis upon the prescription blank, into the patient's system and frequently with him “to be resolved to earth again,” and, “to mix forever with the elements.”

Again, in some of the conditions of continued fever,—*e. g.*, in typhoid,—this drug has been administered as a cardiac stimulant for a period of several weeks. Also in pulmonary tuberculosis, when the nutritive condition of the heart is below par and its action somewhat feeble, this drug has been resorted-to.

Now, in any or in all of these conditions which I have made-reference-to, digitalis, in order to accomplish any beneficial results, would of necessity have to be administered for a period of at least some weeks,—and, in some instances, months,—were the drug employed with a view to properly tone and increase the nutritive condition and working capacity of the enfeebled or irregular heart. But the necessity of prolonged administration primarily excludes the employment of this drug in appropriate physiological doses; for, were it to be administered in sufficient quantity to get any effect from the digitalis, any good results which might

(*) This combination is one that has been extensively used at Prof. PORTER'S Clinic for several years.

have been accomplished during a few days or weeks after its first administration, would be completely upset and undone in a short time by its continuance, owing to the cumulative effects of the drug.

That digitalis has its appropriate therapeutic sphere is not denied; that it is a powerful diuretic, applicable to many cases demanding a more thorough urinary elimination, and that it is a powerful cardiac stimulant of great utility in cases of threatening collapse, is also true; and that its employment in such cases is most appropriate is readily conceded. But in no instance may the drug be employed for any considerable length of time—in conditions demanding heart stimulation or increased cardiac nutrition and vitality—without invariably damaging the heart muscle, and often permanently so, by instituting in its prolonged use a condition of defective nutrition of the organ and subsequent fatty degeneration.

RATIONAL LINE OF MEDICATION.

In affections of the heart, then, which call for a better nutritive vitality and increased working power for some length of time, one must resort to such drugs which may be administered without occasioning any cumulative effect or secondary degenerative condition of the heart muscle, and which consequently may be administered without interruption until an approach toward the establishment of the desired action be reached.

Such drugs as caffeine, strychnine, belladonna, and opium may be placed in this category. Caffeine, strychnine, and belladonna, in common, increase the force and frequency of the muscular contraction, lengthen the systole and nourish muscle tissue. Opium apparently has a "selective" action upon the rapidity of the heart's action; it slows a rapid and accelerates a slow heart,—it prolongs the systole and also the diastole, and nourishes the cardiac muscle; of the foregoing drugs opium is in reality *the* "regulator" of the heart.

Of these drugs some have diuretic properties, particularly caffeine. The administration of this drug produces general but moderate arte-

rial contraction, with dilatation of the arterioles in the splenic arcade; the general nutritive tone of the capillary system is enhanced; and diuresis results. Strychnine exerts practically the same influence upon the capillary system, but not to the same extent as caffeine.

Belladonna causes universal arterial contraction, including the vessels in the splenic arcade. It has no diuretic action. Opium influences the smaller blood vessels and capillaries in the same manner as it does the heart itself, regulating the "tonicity," dilating contracted vessels and contracting dilated vessels; it also has a slight diuretic property.

Such then being the physiological action of these cardiants, we are in a position to employ them with a view to establishing a regular rhythmical action of the heart, and a uniform tonicity of the vascular system, without the fear of damaging the nutritive tone of the cardiac muscle; and consequently we place the heart in the best possible condition toward performing its mechanical function effectively and maintaining an equivalent nutritive activity.

NEUROTIC AND OTHER AFFECTIONS.

In certain forms of cardiac neurosis, *e. g.*, in Tachycardia dependent primarily upon a choreic condition, when the administration of such drugs as arsenic, iron, quinine, the bromides and even digitalis and its active principles have failed to establish a slower and more regular heart action, a combination of the cardiants mentioned in the earlier part of this paper has, as a rule, produced most desirable results.

Also in those forms of anæmia in which the nutrition of the cardiac muscle was disturbed to such an extent that hæmic murmurs were present, the same drugs employed have improved the condition of the heart's action, and, by assisting its nutrition, have occasioned a cessation of the functional murmurs.

In acute endocardial inflammations, especially those of rheumatic origin, opium, belladonna, and strychnine combined, may be administered to advantage; for they will regulate the action of the heart better than digitalis, because they

do not produce the high tension of the digitalis, but strive to regulate the tension of the vessels distributed to the heart, in such a manner that the nutrition of the organ is perfectly maintained; whereas, with the digitalis there is always the danger of rapidly establishing degenerative changes in the cardiac muscle by the prolonged high tension, and from the fact that the digitalis is constantly increasing the inherent muscle-contraction.

SUMMARY.

In brief, in a variety of cases in which the heart's action is irregular, weak, diminished in tone and in nutrition, these cardiac tonics have been employed with beneficial results.

In fine, it is not claimed, nor would the writer have it supposed that he claims, for this particular combination of therapeutical agents, that they are of universal application when the heart is the seat of disease; nor that the administration of such drugs induces a complete change from a pathological condition to one absolutely normal. But *it is claimed*, and on the grounds of abundant clinical observation,—which is a safe criterion,—that the results are most satisfactory in the direction of alleviating some of the forms of mechanical difficulties and nutritive disturbances associated with valvular and neurotic affections of the heart.

253 East 71st Street, NEW YORK CITY.

VINEGAR, according to Dr. V. T. SMITH, is the best *antidote* to the effects of an overdose of aconite.

JABORANDI has given excellent results in an obstinate case of erysipelas in charge of Dr. SIMPSON.

PAREGORIC, by inhalation ($\frac{1}{2}$ ounce to a pint of boiling water), has been prescribed by Dr. HARE for nervous *irritative cough*.

ANTIPYRINE, in 2-grain doses every two hours, or 8 grains three times daily, is recommended by Dr. GREEN in *acute bronchitis*.

AMMONIUM NITRATE is used by some apiarists to *stupefy bees*. It is burnt in the hives, whereby it is converted into nitrous-oxide gas (N_2O).

WITCH-HAZEL (distilled), added to 4 parts of water, is recommended by Prof. COHEN for injection (3 or 4 times daily), after the removal of *nasal polypi*.

EUCALYPTUS OIL, in ointment with vaselin (1:16), has been found very useful in dry *nasal catarrh*; it is freely applied to the nostrils with a camel's-hair pencil.

SANTONIN, administered with sugar, in doses of $\frac{1}{4}$ – $\frac{1}{2}$ grain, is reported to be useful in *enuresis* due to irritation of the vesical sphincter.

PILOCARPINE, subcutaneously in $\frac{1}{3}$ -grain doses once or twice a week, sometimes yields, it is claimed, good results in *neuratrophic alopecia*.

CASTOR OIL, according to Dr. R. STOCKMAN, is usually prescribed in unnecessarily *large doses*, thereby provoking diarrhoea. He usually orders only 1 dram or so, and it is claimed, with the best results.

ETHEREAL TINCTURE OF IRON, in doses of 10 drops three times a day, is lauded by Dr. WYSS in *chronic nephritis*—the albuminuria rapidly and completely disappearing in more than half of the cases so treated.

FUCHSINE, in 1% alcoholic solution, is reported by Dr. A. CAVOZZANI to have produced a cure in five cases of *traumatic erysipelas* in less than thirty-six hours, with but two applications. Aside from its antiseptic properties, the drug, it is stated, forms a protecting pellicle impermeable not only to liquids, but also to gases.

MEDICINE ABROAD;

AS REPORTED BY OUR FOREIGN STAFF.

European Editor: H. BAILLON, M.D.,

Professor in the "Faculté de Médecine de Paris"; President of the "Société Linnéenne de Paris"; formerly Professor of Hygiene at the "École Centrale des Arts et Manufactures"; etc., etc.

PLEURISY.

DISCUSSED AT THE ACADEMY OF MEDICINE
IN PARIS.

{ Merck's Bulletin Office, 12 Rue Cuvier,
Paris, May 10, 1892.

Pleurisy and thoracentesis were again the subjects under discussion at the ACADÉMIE DE MÉDECINE to-day. But almost everything that can be said in these directions has been said.

HARDY denied that the present treatment of pleurisy was better than that of the past. He refused to adopt the opinion of G. SÉE "that nothing must be done for patients attacked by pleurisy." He recommended antiphlogistics for vigorous persons; afterward, blistering. He strongly combated the opinion of LANDOUZY that pleurisy is nearly always of a tuberculous nature; refusing to admit, and not without reason, the results of experimentation on guinea-pigs. He wound-up by declaring that DIEULAFOY often punctures the thorax where it is not necessary.

G. SÉE still sticks to his

"MORBID CYCLE,"

the end of which he always waits-for in order to intervene surgically;—*and then*, he says, he operates by puncture nearly always, whether the effusion is considerable or not. Here, therefore, he is in contradiction with DIEULAFOY, who, however, did not reply and who, in our opinion, would do well not to reply further.

May 17.

At to-day's session, on continuing the discussion of pleurisy, a point of extreme interest was broached by CADET-GASSICOURT on the treatment of

PURULENT PLEURISY IN CHILDREN.

He has observed, this year, 13 cases of purulent pleurisy, of which ten were in a children's hospital. *In none of those 13 cases had a puncture*

been made before the one which revealed the presence of pus. It cannot, therefore, be claimed that the purulency of the effusion was brought-on by the punctures. Of the 13, 6 were treated by means of simple puncture, and 7 by intercostal incision. There were 10 cures. Of the 3 deaths, one was caused by a toxic diphtheritis and the two others by tuberculous broncho-pneumonia.

LABORDE and POTAIN insisted on the inconveniences of the

ABUSE OF BLISTERING,

which accumulates cantharides in the general organism and may cause serious cases of albuminous nephritis.

May 24.

It was

AN ARMY SURGEON,

L. COLIN, who spoke to-day on pleurisy; and, if we make a *résumé* of his speech, it would be to say, that he kept principally to the *practical* side of the question. Upon the whole, Dr. COLIN is an eclectic. He admits of thoracentesis, and he does not think that, by itself, it can transform a sero-fibrinous exudation into a purulent one. With great reason, he believes that it is a simple question of cleanliness. The operator who produces pus in the pleura is the one whose instruments have not been cleansed of the contagious principle, whatever it may be, with which they were impregnated.

OPERATION ALONE WILL NOT HEAL THE PLEURA.

But, at the same time, Dr. COLIN thinks that thoracentesis *should not constitute the sole means of action* of the physician against pleurisy. He believes that there is not only an effusion to evacuate, but that there is *also a diseased pleura to be treated*. Blistering has always been useful to him under these circumstances; he uses this treatment, and it is used in the army.

FAVORABLE RESULTS IN MILITARY HOSPITALS.

If the statistics are reliable [?], an average of only 4% of the French soldiers attacked with pleurisy are lost. We have here decidedly more favorable figures than those of the civil hospitals of Paris.

May 31.

The discussion of pleurisy is not yet ended. *Pleurisy in horses* was even discussed, and, in this connection, a veterinary surgeon, TRASBOT, has now warmly taken-up the cause of blistering. What he especially set-out to prove was the fact that,

IN ANIMALS,

there is almost always a direct relation between the malady and a preceding "cold"; that anti-phlogistic and derivative medication, applied in good time, surely exerts upon it a good influence; and that thoracentesis constitutes a complementary treatment, to which recourse should be had before the effusion brings-on an attack of asphyxia.

Happily, POTAIN brought the subject

BACK TO MAN

and to the indications of thoracentesis, holding himself strictly to his subject. He contested, with all his might, the assertion of VERNEUIL, that thoracentesis transforms serous pleurisies into purulent ones. The truth, in his opinion, is that thoracentesis *reveals* the presence of purulent effusions which, without it, would have remained undiscovered; but that it does not produce them, when the operation is well performed.

POTAIN draws his

INDICATIONS FOR OPERATING

from four different considerations: functional troubles, the abundance of the effusion, its age, and its nature.

Dyspnœa is, according to his ideas, a very unstable sign, which may be lacking even in the presence of an enormous effusion. He considers that cyanosis and tendency to syncope are of the same category. Often, the *functional troubles* warn the observer too late, do not warn him at all, or are produced by other causes than those which may necessitate the operation.

An abundant effusion calls for thoracentesis; because, as a rule, the danger of syncope or asphyxia is in direct ratio to its abundance; and also because its tardy absorption, if waited-for, maintains the danger for a longer period. The delicate point is always

THE EVALUATION OF THE QUANTITY OF THE EFFUSION.

The limit of its extent upward shows nothing; because the liquid may accumulate in all directions,—lowering the diaphragm, forcing back the lung, the heart and the costal wall.

The general practitioner, therefore, will have a great interest in knowing what rules

A PHYSICIAN OF SO MUCH EXPERIENCE AS POTAIN

adopts. He does not judge it necessary to operate if the liquid does not reach the level of the clavicle; and even when it does reach it,—if it is proven that the diaphragm is not lowered, if the mediastinum is not forced back, if the thoracic wall is not notably bulged-out, if the lung still occupies a considerable space in the thoracic cavity. But he operates at once *if the lung is compressed, and if any signs of distention of the pleural cavity are noted*. And he adds (and this should attract the attention of hesitating practitioners) *that he holds this rule as absolute, and that he would depart from it at no price; as he formerly has had cause to bitterly repent having acted otherwise*.

As to the *age* of the effusion, POTAIN would have the operator draw-off the liquid as soon as there is no more hope of its being promptly absorbed under the influence of medical treatment.

As to its *nature*, the physician has rarely anything but presumptions to depend upon, outside of puncture. But if the operation is decided-upon, complete evacuation exposes one to serious accidents. About half the liquid which is supposed to exist in the pleural cavity should be taken away.

POTAIN'S CONCLUSIONS

are, happily, very concise: thoracentesis, well performed, does not provoke suppuration of the serous effusion; it is not to this that the multi-

plication of purulent effusions must be attributed; its indications are subject to fixed laws, from which the physician must not deviate; the operation must be performed with all necessary precautions; and it is just as much an error to abstain from it, when it is necessary, as to operate wrongly and badly.

DIEULAFOY

would have done well to abstain from adding anything to the above; but it was quite amusing to hear HARDY protest when the former went so far as to say that LOUIS, ANDRAL, and BOUILLAUD "hardly knew what pleurisy means." This is certainly going too far.

PASTEUR'S "LATEST",

AND CHARCOT'S SIGNIFICANT REMARKS ON IT.

{ Merck's Bulletin Office, 12 Rue Cuvier,
Paris, June 7, 1892.

This time it is the political press, which, more than the medical press or the academic societies, stirs-up public curiosity by the announcement of the treatment of *Epilepsy* by means of the same envenomed rabbit's marrow which Dr. PASTEUR employs as a remedy against rabies. As this matter will be much talked-about both on this side of the ocean and on the other, I believe I ought to give you some information on the origin of this novelty, which is destined, without doubt, to agitate people's minds.

WHAT HAS BECOME KNOWN SO FAR.

In 1891, two children bitten by mad dogs were treated by means of antirabic vaccination at Pasteur's Institute. They had been epileptics, and it appears that, since they were submitted to the inoculations of rabbit's marrow, the attacks of epilepsy are found to have disappeared.

Immediately hereon, PASTEUR asks CHARCOT to commit to him some epileptics, to be treated in his manner. CHARCOT hesitated at first, then he sends an epileptic in whom the disease was of twelve years' standing and had since then resisted all the treatments customary at the hospital SALPÊTRIÈRE. PASTEUR now inoculated him with a rabic virus of very attenuated intensity, it is said.

Is the patient cured? We do not know. But many lay journals are inclined toward the affirmative.

Perhaps PASTEUR has heard of the bacillus of epilepsy, found at Halle in the lungs, the liver, and the blood. Probably, also, he believes that the attacks of epilepsy and of hydrophobia are of similar natures. The thing of importance is to know what CHARCOT thinks of this confusion, which is quite natural in the mind of a man who, like PASTEUR, never went very deeply into medical study. The staff of the SALPÊTRIÈRE have but little doubt as to what the opinion of their chief will be. PASTEUR's pretension is by them treated as a huge joke.

WHAT DO WE KNOW OF EPILEPSY?

It is well known that epilepsy is a hereditary affection; it is well known that it is, if not cured, often considerably improved by certain treatments; it is well known that, under influences often ill-defined, it frequently ceases its manifestations during variable periods of time. But it is *not* admitted that epilepsy is a microbic affection. We were anxious to hear CHARCOT express himself in regard to this great news; he did not fail to do this at his clinical lecture of last Tuesday.

CHARCOT A SKEPTIC AS YET.

— In our days, says he, the story is told that epilepsy is a microbic affection. Well,—*what* next? Why would not the whole of the nervous pathology, all of the arthritic pathology, come under the domain of the microbe? Much has been done, no doubt, in getting order out of chaos in the class of infectious diseases considered as microbic. But what an immense deal is still unknown! What do we know of the influence of the atmospheric air, and of the conditions of the struggle? It is believed that the plague and typhoid fever will be suppressed—some day even leprosy. *But is it quite sure that laboratory researches will herein amount to anything?* And, then,—what of cholera? But it is a very mitigated type of cholera indeed that ever comes to our notice here.

A DISTINCT WARNING.

And, since the occasion presents itself, *let us proclaim, loudly enough to be understood, that there are some things in the world besides microbes! It is a very flood of animalcula that has been let loose upon the world. Let us stop; for mercy's sake, let us stop!*

—CHARCOT became quite animated with these words. It is asseverated by those about him that he has well made-up his mind, if the matter should be pushed still more, to make a communication to the ACADEMIE, to disclaim any responsibility of his for it.

According to him, PASTEUR is sailing a wrong course altogether. We shall soon see how far he will go; and the situation is not without interest, as you may readily see.

ACADEMY ECHOES.

PARIS,—Session of June 7, 1892.

The discussion at the ACADEMIE DE MÉDECINE to-day no longer possesses the attraction which the preceding meetings offered to the hearers. Pleurisy and thoracentesis are not talked-of any more; and this is not exactly a misfortune; for those questions, on which everything appeared to have been said, were beginning to be obscured by any further words.

The celebrated surgeon PÉAN even has been unable to interest his colleagues to any high degree, by speaking to them of *total ablation of the uterus* for large fibrous and fibro-cystic tumors of that organ. With the exception of a few specialists, nobody seemed to pay attention to his conclusions, which were as follows:

Every time the removal of these tumors is indicated, it is expedient to have recourse to the method of total ablation of the organ *by way of the abdomen and vagina combined*; this method allows of removing the diseased uterus and its appendages more rapidly than it could be done by the intra- and extra-peritoneal methods.

BARIUM SALTS are generally considered quite poisonous; according to recent investigations, they produce coagulation of the blood.

THERAPY OF THE DAY.

NEW PLATE-ELECTRODE.

Dr. BOUREAU has presented a new electrode to the SOCIÉTÉ CLINIQUE DES PRATICIENS DE FRANCE, composed of a wad of absorbent cotton of variable thickness, according to the intensity of the current to be employed. In the centre of this wad a few sheets of spunk may be placed, for the purpose of augmenting the resistance to the current and enabling the patient to bear the strongest intensities without harm. On the external aspect of the cotton there is a metallic plate, which serves to establish the contact and whose centre is connected with one of the wires of the pile. The whole is maintained in place on one side by some light material, and on the other by a celluloid plate.

When intended for use, the electrode is dipped into salt water. The absorbent cotton instantly soaks up the liquid, the excess of which is pressed out so as not to wet the patient. The electrode is then applied over the part of the body to be treated.

This new plate-electrode can have any form for application, according to its special mode of fabrication, and can be made of any desirable size. It is claimed that those who have used it have been satisfied with it.

ECTHYMA.

According to Dr. THIBIERGE, the treatment of this affection, as stated at a recent clinical conference of the HÔPITAL SAINT-LOUIS, is both general and local. For the former, it is necessary to favor the enfeebled nutrition by means of good restorative alimentation, rest in bed, and invigorating tonics (cod-liver oil, cinchona wine, iron, arsenic). The local treatment is considered more important, and has two purposes: to cause the lesions to disappear, and to prevent auto-inoculation. First the ulcerated surfaces must be laid bare by the removal of the crusts by means of baths, poultices, spraying with boric-acid water, and wet dressings (sodium salicylate in 1- % solution or corrosive sublimate 1:5000 solution). The ap-

plications of the cataplasms and of the moist dressings are to be made for a very short time, in order not to permit auto-inoculations to be produced; they should be discontinued as soon as the crusts have fallen away. The lesions may then be covered with Vigo's mercurial plaster, or with red-lead plaster of the following description:

Red Lead.....	} of each, 5 parts.
Cinnabar.....	
Lead Plaster.....	52 "

The following ointment may be spread over the pustules:

Beta-Naphthol.....	5-10 parts.
Zinc Oxide..	} ...of each, enough to make 100 "
Vaselin	

Whenever there is a tendency toward gangrene, Dr. THIBIERGE dresses the parts with aromatic wine, or with camphorated alcohol. If there be any irritation produced, emollient applications are employed concurrently. Iodoform, iodole, salol, and aristol have also been used. Auto-inoculation is avoided by the antiseptic washes. It is considered necessary to disinfect the clothing which is in contact with the skin, either by means of heat or of corrosive sublimate.

NEPHRITIS FROM ARTERIAL CONSTRICTION IN YOUNG PEOPLE.

According to Dr. J. POILLOT, this disease manifests itself by symptoms analogous to those of interstitial nephritis. Its beginning is generally insidious; it develops silently for years. However, albuminous polyuria appears early; the urine is pale, limpid, of low specific gravity, without casts, and with little or no albumin. Mild symptoms of Brightism are constantly present—difficulty of hearing, intense pruritus, cryæsthesia, numbness of the fingers, etc.—Then slight circumscribed œdemas of the eyelids and of the malleoli show themselves. The heart is hypertrophied, with murmurs and palpitations. After one or more years, complications dependant upon the renal insufficiency supervene—vomiting, diarrhœa, hæmatemesis, epistaxis, prurigo, migraine, disturbances of sight, etc. Of these individuals with abnormally small

arteries, the males are often unbearded, and have infantile external genitals; the females have uteruses of diminutive dimensions. Heredity is said to be possible in this regard, direct or collateral. The ordinary respiration is unobstructed but there is oppression or cardiac palpitation after the least exertion.

The prognosis is considered the same as that of interstitial nephritis. The patients prolong their existence only under the influence of strict hygiene; they ought to avoid cold, favor diuresis; and treat the uræmic attacks that might supervene, with the milk-diet and drastics. In the incipient stage, under the influence of ordinary causes—cold, traumatism, etc.,—the grave complications depending upon renal insufficiency might appear all of a sudden, and endanger life.

Of course, Dr. POILLOT asserts, the kidneys become atrophied; the interlobular arterioles are destroyed or transformed into hyaline or fibroid masses. The constriction of the arteries is said to be generally pronounced,—the aorta very often having but a little more than half of its normal calibre.

OZÆNA TREATED BY INTERSTITIAL ELECTROLYSIS.

According to Dr. JOUSLAIN, the subjective symptoms of this affection, as reported before the SOCIÉTÉ FRANÇAISE D'ELECTROTHÉRAPIE, are those of chronic coryza, with dryness of the throat and hoarseness. But the gravity of the trouble depends on the fœtid odor which the patient emits, and which renders him an object of repulsion. Thus far, all the various treatments have been palliative, and the affection was of indefinite duration. Applying the ideas of Dr. GAUTIER, Dr. J. employs interstitial electrolysis with the production of copper oxy-chloride. He uses a pile with a constant current, the positive pole of which is provided with a good galvanometer. The two poles are then connected with two cylinders of red copper, 12 centimetres [$4 \frac{4}{5}$ inches] long and 6 millimetres [$\frac{1}{4}$ inch] thick. After cleansing the nares,—which are generally lined with ad-

herent greenish crusts,—a cylinder is introduced into the fundus of each fossa, and a very feeble current (3–6 milliampères) passed for five minutes. At the end of this period, the current is brought back to “o” and the electrodes are interchanged, after being wiped off — the positive electrode is almost always thickly covered with greenish mucosities. It is reported that the patients have a taste of copper from the very beginning of the application, and that, beyond this, there is little or no pain produced, and the subjects offer no resistance. The current is said to pass with extreme facility through moist and not very thick tissues. The result is usually an excellent one, according to Dr. JOUSLAIN, who states that the current does not provoke the slightest pain, if care be taken to place the negative electrode close to the positive one, and as near as possible to the cheek.

ECZEMA;—MODES OF TREATMENT AT THE HÔPITAL SAINT-LOUIS, PARIS.

Dr. BROCO, physician to the above hospital, thinks that not every case of eczema ought to be treated therapeutically, but that in old eczematous patients suffering also from asthma, or subject to cerebral and nervous complications, the physician should content himself with *hygienic* measures, to prevent the disease from growing worse, or to mitigate it without suppressing it entirely. A number of cases are on record where such patients all but died in consequence of suppressing their eczemas. In the case of an old man, formidable nervous complications were caused to disappear by applying first a blister and then a cautery to the nape of the neck, and keeping up the eczema.

According to Dr. BROCO, local treatment does not suffice; a general treatment is also necessary. In cases of pruriginous eczema, the same constitutional treatment must be prescribed as in gout; arthritic patients should be treated with alkalis; scrofulous subjects with cod-liver oil, etc.

Pills of the following composition are recommended :

Sodium Benzoate..... }
Lithium Benzoate..... } of each, 3 ss [2 gm.]
Gentian Extract }
Glycerin..... a sufficient quantity.
Divide into 50 pills ! 4–8 daily.

Good results have sometimes been obtained from the use of potassium or sodium iodide in small doses. In eczemas that are intermittent in character, and that might be named erysipelatoid, about 1 gramme [15 grains] of quinine sulphate is given immediately after the first chill; then, during the following week, 2–4 of the following pills daily :

Colchicum Seed Ext. *Ph. Gall.* }
Powdered Digitalis } aa gr. viiss [0.5 gm.]
Quinine Hydrochlorate..... gr. LXXV [5.0 gm.]
Gentian Extract }
Excipient } of each, a sufficient quantity.
Divide into 50 pills !

In the acute stage of eczema, the means of local treatment consist of cataplasms, caoutchouc and medicamentous powders. Certain precautions must be observed in the employment of poultices. At the SAINT-LOUIS, tarlatan is used, its stiffness being previously removed by warm water. Then the paste is prepared from starch by throwing it into boiling water and setting it for a moment on the fire. This poultice must not be applied very hot; the paste should first be allowed to cool off a little. This cataplasm is considered one of the best topical applications known against eczema.

Caoutchouc is easily applied in some regions, as on the head, but it is said to give inferior results. It is not to be applied directly to the skin, but the latter is previously covered with several layers of tarlatan saturated with a decoction of chamomile, to which, for every litre [1 quart], one or two teaspoonfuls of boric acid and one or two teaspoonfuls of powdered starch have been added.

But there are some eczemas which do not bear moist applications; in these cases the affected part is freely strewn with starch or with the following mixture :

Bismuth sub-Nitrate..... }
Zinc Oxide } of each, 1 part.
Powdered Talc 5 parts.
Externally !

In the treatment of chronic eczema, Dr. BROcq commences with the application of the following ointment:

Zinc Oxide.....1 part.
Vaselin.....9 parts.
Externally!

Then a more active salve is used, such as the following:

Zinc Oxide.....2-4 parts.
Calomel.....1-4 "
Vaselin.....20 "
Externally!

In more rebellious cases, as in certain eczemas of the flexure-surfaces of the joints, the following much more active ointment is employed, but with care and under attentive supervision:

Yellow Precipitate.....1-2 parts.
Cade Oil.....2-8 "
Externally!

In eczemas of the scalp, the following salve sometimes is successful:

Precipitated Sulphur.....1 part.
Cacao Butter.....2 parts.
Castor Oil.....10 "
Externally!

To this ointment about 6 % of beta-naphthol or camphor may be added.

In eczema with abundant desquamation, the following ointment is used, and is reported to be very successful:

Salicylic Acid.....1 part.
Zinc Oxide.....4 parts.
Vaselin.....18 "
Externally!

Against pruriginous eczemas a salve is preferred which will form one continuous coating over the affected part. For example:

Zinc Oxide.....
Vaselin.....
} equal parts.
Externally!

To allay the pruritus, 2 % of carbolic acid or of peppermint oil may be added.

MENTHOL is considered by Prof. HARE the next best *local anæsthetic* to cocaine.

BORIC ACID and Iodoform, equal parts, combined with peru-balsam and vaselin, have been lauded in *anal fissure*.

WISDOM OF THE AUTHORS:

ABSTRACTED FROM RECENT MEDICAL WORKS.

* * *

SPONTANEOUS FRACTURES.—DR. L. DUBRUEIL.

The most diversified causes may produce spontaneous fractures. There are general causes which may attack the whole skeleton, and local causes whose action is limited to a portion of a given bone. The general causes are: senile osteoporosis, hereditary or congenital fragility of the bones, rhachitis, osteomyelacia, nervous diseases (such as ataxia and general paralysis), perhaps scurvy and general tuberculosis without local osseous determination. These general causes nearly all act in the same manner,—by rarefying and decalcifying the bone-substance. The fractures unite well enough, but with a callus often exuberant.

The local causes are: syphilis, hydatid cysts, carcinoma, sarcoma, necrosis, and caries. Syphilis acts in its tertiary period and by means of a central gumma; the hydatid cysts, by rarefying, to its extreme limit, the osseous substance around the bursa; malignant tumors, by the destruction of more or less of bony tissue.

In this second form of spontaneous fracture the callus is much more difficult of formation; its existence has even been denied in the case of carcinoma. As for ossification in the case of sarcoma, it is difficult and exceptional; but it does occur at times.

In fractures of the first kind, the treatment should be the same as in cases of ordinary fracture; in the second kind, most frequently, the consolidation of the bone demands, when possible, either specific treatment, or operation in the first place.

The bones which are the most often subject to spontaneous fracture are: the humerus, the femur, the tibia, the clavicle, the radius, the ribs, the scapula, the ulna, and the patella.

TERTIARY SYPHILITIC AFFECTIONS OF THE LUNGS.—DR. ROUBLEFF.

These diseases have no distinct pathognomic signs; their diagnosis must be based on the symptoms taken as a whole. As a consequence

pulmonary syphilis is too often taken for pulmonary phthisis. But gummata of the lungs are much more frequent than is generally believed; and in the case of a patient who shows all the symptoms of phthisis, the physician must always remember the possibility of the presence of a syphilitic pulmonary affection, and must make the most minute research in this direction, employing for the purpose all the means in his power—the laryngoscope, the ophthalmoscope, the otoscope, and the rhinoscope. Indeed, it is often in one of these regions which up to recently had, so to speak, been closed to medical exploration, that syphilitic lesions retrench themselves, which could very easily put the searcher on the right track of the diagnosis.

It is possible that a bacteriological examination can alone give positive results which permit of judging of the question with certainty. Furthermore, the two diseases may co-exist. Syphilitic gummata of the lungs are always susceptible of cure as long as, under the influence of specific treatment, the system is able to react. It has long ago been said that numerous so-called tuberculous patients had died because they had not been treated for syphilis.

Most frequently syphilitic pulmonary diseases are only observed in cases of patients of mature age, who have been syphilitic for a long time. Perhaps syphilis even predisposes the patient to tuberculosis, because of his enfeeblement and his lack of resistance.

TOXIC GLYCOSURIA.—Dr. F. CARTIER.

The author has especially in view such cases of glycosuria as are produced in poisoning by nitrate of uranium. He thinks that in the present state of science, the study of toxic glycosuria is incapable of enlightening us on the ætiology of diabetes; but that certain cases of poisoning present much symptomatic analogy with the phases of this affection. When diabetes is established, what is important to know is that there is hyperglycæmia (an exaggerated proportion of glucose in the tissues), and, consequently, infection of the organism with

glucose-poisoning. What interests him is the state of the glucose in the blood, its modification into fatty acids, into ethers, into ammonia, and a number of other substances poisonous to the organism. In the beginning the sugar alone cannot cause serious intoxication; but it may become transformed into a series of really poisonous products, or indirectly be the means of their formation. Thus the organism is slowly poisoned, and cachexia sets in. These poisonous products are cellular poisons which bring-on coma, and cause the patient's death. Glycosuria pure and simple, the first phase of the disease, may be of short duration, or it may last for years. It may disappear momentarily, re-appear, alternate with albuminuria, phosphaturia, azoturia, oxaluria, etc. In the author's opinion, the patient who excretes all these abnormal elements is none the less diabetic. He either gets completely well, and in this case there is no difference between glycosuria and diabetes; or transient and repeated attacks of acute glycosuria may lead to chronic and permanent glycosuria.

Sugar in itself is not a poison, properly speaking; it retards and impedes metabolism. It brings-on certain symptoms; but it does not by itself attack the cellular elements and produce lesions. By giving an animal even enormous doses of sugar, it has not been possible to produce any organic lesions. When glycosuria is experimentally produced by punctures or by nerve-section, no other lesions are occasioned. Again, if the sugar exercised a direct action on the cells, the liver, which stores-up glucoid matter, would rapidly be altered; but in the presence of acid products, glucose gives birth to lactic, acetic, aceto-acetic, formic, crotonic and oxy-butyric acids. There are also produced ethers, acetone, and ammoniacal compounds. Would not ammonia in excess produce poisoning? When an animal is poisoned with any of the fatty acids there is produced the comatose state of diabetes. When diabetes in man produces microscopic alterations, shown at the autopsy, the case is one of advanced disease, the patient having died in coma.

Much oftener there are no lesions, and the author thinks that in this case diabetes had not time to appear. In a diabetic patient, toxic products may circulate in the blood for a long time without producing lethal effects. In general, it appears that the organs which usually excrete organic waste—principally the kidneys—no longer do so, and the waste matter accumulates in the blood; therefore, the ultimate accident most to be feared is diabetic nephritis.

When, for example, acetone exists in notable quantity in the blood, the patient becomes thin, prostration sets-in, with painful heaviness in all the members, headache, persistent diarrhoea — as in pancreatic diabetes — and even persistent vomiting; then comes-on the coma, from which the patients never emerge. The longer the coma lasts the lower the temperature falls. If there is no acetone in the urine, there are always found substances closely related to it, all derived from the acid transformation of sugar. It is well known that aceto-acetic acid, which probably acts on the kidneys in the same manner as acetone, is often formed in the animal economy during diabetes.

When hyaline degeneration of the epithelium of the straight tubes of the Malpighian pyramids is observed, glycogenous matter is not necessarily found in the straight tubes themselves; glycogenic infiltration has existed, but has disappeared. Therefore some other substance than glucose is responsible for the degeneration.

On the whole, the author admits, as did CLAUDE BERNARD, that at the beginning of its evolution, diabetes is a general affection, *sine materia*,—a mere dyscrasia of the blood, without any initial material lesion (excepting in the case of nervous alterations, the cause of which we do not as yet really know). So that, at the start, all cases of diabetes symptomatologically resemble glycosuria. In the first stage, the presence of the sugar in the organism may well determine symptoms of saccharine intoxication; but it cannot, in itself, produce any lesions; and it is little by little that, under

the influence of time and organic fatigue, the sugar gives birth to toxic products, which modify the aspect of the disease, and which prove their existence by causing a period of cachexia. The latter may show itself from the outset of the disease, if the diabetes is not well borne by the general organism. Finally, the products derived from the sugar are cell-poisons, which alone bring-on coma and death, and, aside from any complication, determine the lesions which are discovered at the autopsy.

As for the physiologic action of uranium and its salts, the author has studied their absorption by the digestive tract: the noxious action of uranium on ptyalin, pepsin, and trypsin. He has established the fact that the salts of uranium are very sensitive re-agents for albumin; that it is through the uranium that the different salts cause the serious phenomena of intoxication; that the acid of these salts is not the cause of uranic diabetes; that the alkaline salts of uranium also bring-on glycosuria; that injection of carbonate of sodium does not prevent uranic glycosuria; that uranium produces cessation of the movements of the vibratory cilia of the respiratory epithelium, arrest of muscular contractility, and paralysis of the motor nerves; that the cardiac muscle resists the action of the poison; that the latter has a dilating effect on the blood-vessels, and an action on the blood whose de-oxygenation in the organism it retards, and that it lessens the reduction of oxy-hemoglobin; that the exhalation of carbonic acid is modified; that fasting diminishes uranic glycosuria; that the albuminuria from the beginning of the intoxication presents special characteristics; and that incision of the medulla suppresses the albuminuria at once.

CONNECTION BETWEEN DISEASES OF THE EYES, NOSE, AND NASAL CAVITIES.— Dr. E. BERGER.

This book contains a refutation of the theories of nasal reflex troubles, according to which the symptoms coinciding with affections of the nasal fossæ are due to the swelling of the

cavernous bodies of the middle and inferior turbinate bones. The author thinks, on the contrary, that the affections of the nasal mucous membrane destitute of turbinate bones may produce absolutely the same reflex symptoms as the affections of the middle and inferior spongy bones. Running of the eyes, blepharospasm, disturbances of accommodation, amblyopia, and narrowing of the visual field, are caused by the irritation of the tri-

geminus in the nose and the sinuses. In this work, there are numerous details on the connection which exists between the central nervous system and the organs of the senses, especially those of smell and vision. It is absolutely necessary to take into account the great diagnostic value of a thorough examination of the eye, in all cases of diseases of the cavities near the eye and of the nasal cavities.

RATIONAL DIETETICS:

STUDIES FOR "MERCK'S BULLETIN."

FOOD VALUES.

v.

DIGESTIBILITY OF MILK.

Milk is so extensively used as an article of diet, from infancy to old age, both in health and disease, that a thorough knowledge of its possibilities is imperatively demanded.

A clear conception of the method of its digestion, and of the means at hand by which the commercial product can be made most available, is absolutely essential.

In our last chapter upon this subject of food values, it was shown that the milk, as it ordinarily reaches the consumer, is an entirely different article from the fluid as freshly drawn from the cow's udder.

It was also shown that when the milk is taken directly from the mother's breast by the infant it is a perfectly aseptic fluid; and that when it enters the gastric cavity its temperature is nearly the same as that of the stomach into which it flows.

SECRETION AND ACTION OF THE RENNIN.

Experiment and clinical observation has proved beyond a question of doubt that the gastric mucous membrane secretes not only the proteid ferment pepsin, but also the milk-curdling ferment *rennin*. This latter agent is the most essential factor to be considered in our investigation of the digestibility of milk.

Observation of the methods followed by

natural circumstances, together with experimental research, has established the law quite conclusively that this milk-curdling ferment, rennin, is caused to flow most freely from the gastric mucous membrane when the milk is applied to the internal surface of the stomach at the temperature of the body or even at a higher degree.

A warm albuminous fluid like milk excites a copious discharge of rennin; whereas a cold temperature and mechanical irritation by solid particles retard the production of rennin, but excite an abundant formation of the gastric acids and pepsin.

The transmuting power of the rennin consists in its ability to convert fluid casein into fine feathery flakes. This transformation is also most rapidly and perfectly effected in a moderately warm mixture.

In the case of the nursing child, or when the adult patient takes the milk immediately upon its withdrawal from the cow's udder, there is introduced into the stomach of the human organism a perfectly aseptic fluid, which might be called a naturally sterilized food-stuff having about the temperature of the gastric cavity.

When milk is introduced into the stomach, under these favorable conditions, it at once stimulates a liberal discharge of rennin. The temperature of the stomach being that which is most favorable to a perfect action of this

ferment, the result is a complete and perfect precipitation of the casein in minute feathery flakes.

In this form the semi-solidified casein presents the largest surface area to be attacked and acted-upon by the other digestive agents,—a condition which favors a rapid peptonization of the proteid elements contained in the milk.

THE FUNCTIONS OF THE HYDROCHLORIC ACID AND THE PEPSIN.

Consequent upon the conversion of the liquid casein into this semi-solid condition, there is in the stomach a fluid in which are suspended innumerable small particles. The mechanical irritation caused by these little masses still further irritates the mucous membrane of the stomach, and as a result hydrochloric acid is generated. This acid acts on those almost microscopically small particles of semi-solidified casein, which have an alkaline reaction, and changes them into an acid form of proteid, commonly called syntonin.

At the same time that the hydrochloric acid is produced, the ferment known as pepsin also appears.

This pepsin ferment transmutes a part only of the newly-formed acid-casein or syntonin into a diffusible peptone, in which form it can be absorbed by the entero-hepatic circulation.

IMPORTANCE OF THE PANCREATIC FERMENT.

A large percentage, however, of the semi-solidified and then syntonized casein, in the adult, passes directly over into the intestine, without first undergoing peptonization in the stomach. This non-peptonized syntonin, upon reaching the intestine, is acted-upon by the alkaline fluids existing in the alimentary canal, and is thus *changed back to an alkaline form* of proteid. This alkali-albumin is then rapidly transmuted into a diffusible peptone by the action of the trypsin ferment secreted by the pancreatic gland. *In the infant, however,—the pancreatic glands being imperfectly developed,—it is especially essential that the gastric peptonization should be as completely effected as possible.*

This is the clear and complete picture of what occurs when everything acts most favorably, and according to the well-defined laws of nature.

BEHAVIOR OF COLD MILK IN THE STOMACH.

If, on the other hand, the ordinary milk, as obtained in the market, is introduced into the stomach ice-cold,—as is very frequently the case,—there is an entirely different result from the one which has just been detailed.

The introduction of cold liquids into the gastric cavity has been proved to retard most energetically both the formation and precipitating action of the milk-curdling ferment rennin; while it promotes rapid formation of the gastric acids and pepsin production.

If then the milk is taken at a temperature below that of the body, or ice-cold, as is often the case, there is a marked tendency to retard, temporarily at least, the production and milk-curdling action of the rennin; and at the same time there is often an abundant outpouring of the gastric acids and pepsin ferment. When this occurs,—there is a marked tendency for the gastric acids to take the place of the rennin in the process of casein-precipitation. In consequence hereof,—instead of the fine feathery precipitation of the casein with its large surface area,—this substance is precipitated in coarser and much tougher particles, presenting relatively very much less surface area for the peptonizing ferments to act-upon.

GASTRIC DISTURBANCE FROM CASEIN CLOTS.

The precipitation may, however, be effected even so rapidly and in such a condensed form, that large tough masses of casein are formed, sometimes as large as hens' eggs or even larger; which almost every practitioner has seen ejected from the stomach.

The first-described *acid* form of precipitation,—in still comparatively small but tough particles,—simply retards the rapidity of the digestion of the casein, and throws most of this work on the ferments of the intestine; but does not of necessity produce marked gastric disturbance, except in infants. In the latter, this is one of the principal conditions which makes

cows' milk so much less digestible than human milk, when in use as a substitute for the mother's secretion. The cows' milk has been chilled at once upon being drawn,—which makes it less susceptible to the action of the rennin, and more likely to be precipitated by the acid of the gastric secretion.

If the precipitation is in very small particles, it may not produce gastro-enteric disturbance even in infants; but the digestive organs are nevertheless constantly overtaxed, and the system is less perfectly nourished and consequently more susceptible to other extraneous influences which can produce intestinal derangement.

But, in addition hereto, in the artificial feeding of infants the milk is often *taken cold*; which is another factor favoring indigestion, as alluded-to in our previous chapter.

When the milk is, then, in consequence of cold feeding or of its own improper condition (acidity), precipitated in large and tough curds of solid casein ranging in size from that of large shot up to masses as bulky as an egg or larger, more or less gastric disturbance is apt to occur on account of the mechanical irritation caused by these indigestible masses.

The gastric symptom developed hereby may be only the sensation of a heavy load or "lump of lead in the stomach"; or it may be an intense gastric irritation with considerable nausea and vomiting, which is relieved only by expulsion of those masses from the stomach.

INTESTINAL DISTURBANCE FROM CASEIN CLOTS.

Those of the solid particles which are comparatively small, may pass over into the intestinal canal, where they prove, however, to be almost as indigestible as they were in the stomach.

These smaller masses in themselves do not as a rule ferment and thereby produce irritation in the intestine; but, if the alimentary canal is at all weak or super-sensitive, they act like foreign bodies in general; and in infants and young children they are often the chief and only ætiological factor in setting up and keeping in motion a diarrhœal condition. If this increased intestinal activity is prolonged, it

often weakens both the digestive and nutritive systems and places the child in jeopardy from other forms of toxic agents,—thus finally developing a truly pathogenic condition.

Many times these colored and bean-like masses of solidified casein which are discharged per anum are sent to the microscopist, for his opinion as to the nature of their composition and the cause of their formation and their influence upon the diarrhœal condition.

DIGESTIVE AIDS WITH MILK.

Thus, we have learned what conditions are most favorable for a perfect digestion of milk, also the circumstances which interfere with its utilization by the system. Also the symptoms which result from these unfavorable circumstances.

The next question to be solved is, how milk can be made more digestible and more perfectly utilized by the animal economy, and how the distressing symptoms at times attendant upon its use can be obviated?

THE USE OF LIME-WATER.

Probably one of the oldest and most commonly employed methods for preventing distress following the use of milk, is the addition of various quantities of lime-water.

This practice will in a measure unquestionably obviate the unpleasant gastric symptoms, and enable the stomach to retain milk when it could not in the absence of the aqua calcis. This, however, does not prove that it is the best method that can be employed.

The addition of the lime-water is a very artificial method of action,—one which does not follow the dictates of natural laws; and it does not, therefore, tend to assist Nature directly in the normal performance of her functions.

Lime-water does prevent the formation of the large tough curds of casein and their consequent distress; but that is no evidence—nor is there any to be had—that it promotes the production or action of the rennin ferment.

The action of the lime-water, therefore, must be explained in one or two other ways. It may, by neutralizing the acid of the stomach, cause the precipitation of the casein to be more

slowly effected; or it may prevent entirely the precipitation of the casein of the milk in the stomach, and cause the milk to pass-on, in its fluid state, into the intestine, where the fluid casein comes in contact with milk-curdling ferments by which its transmutation will follow more nearly the natural order, which, however, should have been accomplished already in the stomach.

Clinical observation seems to indicate that this latter method is the one principally followed when lime-water is used; because, after taking large quantities of aqua calcis with the milk, it is found that the milk remains for a long time in the stomach in a perfectly fluid state. This fact can be easily proved by causing the patient to vomit, or by using the stomach pump from hour to hour after ingesting the milk.

All this tends to prove conclusively that the presence of the lime-water does not favor the production of rennin and the precipitation by it of the casein in the stomach.

THE LIMITED UTILITY OF LIME-WATER.

Thus, under the liberal use of lime-water, the gastric cavity is made simply a temporary receptacle for the milk, which, then, is actually digested and utilized only through the action of the intestine and its secretions.

Therefore, while the lime-water does palliate the distressing gastric symptoms, it does not enhance gastric digestion. It does, however, enable the stomach to rest, and to retain the milk until it can pass over into the intestinal canal, where it can be digested and utilized; in this way the system is decidedly benefited.

But this is not producing a perfect physiological condition, but is more after the order of robbing Peter to pay Paul.

DRAWBACKS OF COLD MILK TAKEN WITH MEALS.

A prominent cause for the indigestibility of milk, when used *as a common article of diet*, is likewise the habit of drinking the milk ice-cold, and often after partaking of a hearty meal of solid food.

When taken at this time and under these circumstances, it often happens that the milk

causes a copious secretion of hydrochloric acid and peptic ferment.

The abundance of that acid then prevents the production and action of the rennin, and precipitates the casein in tough and large masses, and thus disturbs what otherwise might have proved a perfect digestive act on part of the stomach. This arrest of gastric digestion leaves the stomach also full of other undigested food besides the large lumps of casein; which circumstances, together with the super-acidity, impedes the action of the pepsin and leaves the patient in great distress until the contents of the stomach is ejected. If the stomach is emptied by vomiting, the relief is instantaneous and complete; but if its contents are voided into the intestine, more or less of abdominal discomfort is experienced until the digested mass has passed per anum.

PRECAUTIONARY MEASURES.

These ill effects from the use of milk can be avoided in most instances by abstaining from taking any other kind of food with it, and by also drinking it warm,—preferably as hot as is palatable.

A very agreeable method for preparing hot milk for ingestion is, to make it considerably hotter than it can be swallowed with comfort, then drawing into this very warm milk sufficient vichy from a charged syphon, to reduce the temperature to a degree suiting the fancy of the individual. This method makes a very palatable mixture, but it should always be taken as warm as possible.

The addition of a little sodium chloride also favors the action of the rennin ferment, and aids digestion generally, if for any reason it is especially necessary to take both milk and solid food at the same time.

Also, by taking the milk first and quite warm, and then following it with the more solid meal, the milk-curdling-ferment will be given time to act, and gastric digestion will go on uninterrupted.

EXCLUSIVE MILK DIET.

When it is necessary to conserve all the digestive and oxidation energies of the body and

secure the largest possible yield of nutriment with the least expenditure of vital force, the most effectual method is to have the patient abstain from all other forms of food-stuff, and *take only milk*.

Under these circumstances the milk should be taken in small quantities and at short intervals,—from four to eight ounces every two hours, gradually increased to ten ounces if that much can be perfectly digested.

OX-GALL—A SAFE AND CERTAIN MILK DIGESTANT.

Before taking the first allowance of milk in the morning, the patient should be given a capsule containing about two grains of purified ox-gall, and this should be repeated two or three times during the twenty-four hours. To this capsule may also be added a bitter principle or a laxative agent or both, as the case may demand.

When this plan is carefully and precisely followed out, very few cases will be encountered in which the milk cannot be retained and perfectly digested, and with little or no discomfort.

IDIOSYNCRASIES.

Of course there is a class of cases in which the individuals have, as it were, an idiosyncrasy against milk, and in whom the milk seems to act like a poison. This may be either a temporary or a life condition; in both cases it must be recognized and appreciated; for no method has so far been formulated to overcome these cases and enable them to take milk. In these instances the use of milk should at once be abandoned and some other form of animal food—such as eggs, or beef-tea properly made—substituted, as will be explained later on in these studies.

OX-BILE, A GENERAL DIGESTIVE AID.

By WILLIAM HENRY PORTER, M.D.

In connection with the discussion of the Digestibility of Milk in the above study, it will be found valuable to consider the digestive and therapeutic possibilities attainable by the internal administration of a *pure quality* of In-spissated Bile.

For the reason that very little information of any kind is to be found in medical literature regarding the physiological action and therapeutic value of Bile, a somewhat detailed account of its manner of action and utility will be given.

The writer of these studies has given inspissated bile as a digestive agent for more than ten years. During the last five years he has given not less than ten pounds per year, and has generally prescribed nearer twenty-five or thirty pounds per year. With this extended clinical experience to fall-back-upon, the author feels warranted in making positive assertions regarding the value of this preparation,—regardless of what may be said to the contrary in the ordinary text-books.

DISAPPOINTMENTS FROM INFERIOR PREPARATIONS.

Much difficulty may be encountered and many unsatisfactory results met-with, in case an inferior quality of Ox-bile is used. With such valueless preparations of inspissated bile the writer has had his experience; but when a pure and carefully inspissated preparation is obtained, the results will be all that can be desired.

The following remarks, however, may prove valuable both to the physician and patient, saving to the latter much personal discomfort, and to the former many failures in treatment which, with the use of the proper article, should have resulted in brilliant successes.

The physiological action of *Fel bovis* inspissatum and its therapeutic utility are not accurately detailed in any work upon *Materia Medica* or *Therapeutics*. Yet there is little doubt but that Ox-bile can be made to do a large amount of work in the treatment of both the acute and chronic diseases which afflict mankind.

DANGERS FROM SPONTANEOUS DECOMPOSITION.

First and all-important in the use of *Fel bovis* is the necessity of obtaining an absolutely pure preparation. The ordinary *Fel bovis* inspissatum of the market is often found to contain numerous impurities, which are intensely

irritating to the alimentary canal. These elements are many times almost toxic in their nature and are probably developed out of the proteid elements contained in the mucus derived from the gall-bladder, which undergo certain putrefactive changes and form ptomaine-like bodies.

Even if the bile is pure when first obtained,—which, however, is hardly probable unless the manufacturer has taken great pains to specially purify the original product as taken from the gall-bladder,—this organic compound with its nitrogenous elements is prone to speedily decompose and develop those irritating by-products, unless great care is exercised by the pharmacist in its further preservation and dispensation.

If these facts are not fully known by the physician, or appreciated and acted-upon by the dispenser, much discomfort or even damage will occur to the patient by using such an inferior or ill-conditioned article.

INERTNESS FROM SPONTANEOUS DESSICATION.

Again, the bile, after the original package has been once opened, unless great care is taken, rapidly becomes dessicated and practically worthless.

If the former or decomposed article be used, violent purging is the result; if, on the other hand, the bile in the air-dried condition be administered, no perceptible effect is produced.

As the bile is generally found in the shops in one or the other of these two conditions,—physicians, in trying to use *Fel bovis inspissatum* as an aid to digestion, have been sadly disappointed and have been led both to neglect and to condemn this most valuable therapeutic agent.

RELIABLE RESULTS FROM A CORRECT PREPARATION.

On the contrary, physicians who have been fortunate enough to understand these practical points and to secure a purified preparation of the inspissated bile, have had wonderful success by administering it, and would hardly feel in a position to practice medicine without the valuable aid of this natural agent.

If the physician has had his prescription compounded and dispensed by a pharmacist who fully appreciates the necessity of absolute purity, and who takes the trouble to repurify the bile before dispensing the same, the most reliable results have been uniformly obtained.

ONLY ONE BRAND FOUND GOOD SO FAR.

As far as purity of composition and reliability of action is concerned, the *Fel bovis inspissatum* prepared by a certain firm has always been found thoroughly reliable, no undesirable results have followed upon its administration, and it has been found to act satisfactorily, while all other samples at hand have failed.

One instance in illustration. A preparation of unknown origin was being used in the treatment of a case of typhoid fever, and the temperature continually rose, reaching 105° F. A change was made to the pure preparation alluded-to; and the temperature within twenty-four hours fell to 103° F, and then continued under this point. The course of the disease, from this time on, continued to run a more favorable course. The patient made a good recovery without further exacerbations or complications.

Similar instances might be cited by the hundred, where failure has followed the use of a poor preparation and good results from the administration of the purified article.

THE PHYSIOLOGICAL ACTION

of the *Fel bovis inspissatum* may be briefly summed-up as follows:

First.—It has an

EMULSIONIZING ACTION;

that is, it acts upon neutral fats and minutely subdivides the oil globules, so that they can be easily taken up by the epithelial cells and discharged into the lacteals. An interesting observation worthy of note in this connection is, that the bile emulsionizes only a part of the fat, the balance of the oil being split into its components—a fatty acid and glycerin.

The bile itself does not appear to have the property of splitting fats into their component parts; but, when fully mingled with the biliary fluid, the fat is placed in such a condition that

the *steapsin* of the *pancreatic fluid* can easily separate it into a fatty acid and glycerin, and form a soap by the union of the fatty acid and soda.

Soap and glycerin are both laxative agents. Thus the bile and fat are both essential agents in exciting regular and uniform movements from the bowels. Under-production of bile and too small a percentage of fat in the food tend to cause constipation; while the sufficient presence of these elements favors uniform action of the bowels.

The vegetable oils are not easily emulsified by the bile, but are very readily decomposed into a fatty acid and glycerin by the *steapsin*, with the production of soap. (In this way we have a logical explanation for one element in the production of catharsis from the vegetable compounds and oils. In small quantities the vegetable oils act as laxatives, in large doses as cathartics.)

Second :—The bile contains a

DIASTATIC FERMENT

which has for its action the conversion of starch into glucose. By some it is also claimed that glycogen is reverted to glucose, but this reverse action seems hardly possible.

Third :—Taken as a whole, the bile is a direct

STIMULANT TO THE ALIMENTARY CANAL, producing a normal peristalsis of the intestine, thus tending to favor absorption and prevent constipation.

For this reason, when bile is defectively produced by the system, the addition of new bile is in keeping with the demands of Nature.

Fourth :—

THE BILE-ACIDS

in particular are stimulants to the small muscles contained in the villi, so that by the contraction of these muscles the contents of the lymph-sacs are emptied toward the larger and deeper lymphatics, leaving those in the villi in a position to absorb more. Regarded in this light, the little lymph-sacs of the villi are equivalent to little pumps which are constantly pumping fat out of the epithelial cells and discharging it

into the deeper lacteals, to be passed-on to the general circulation.

Fifth :—

THE MOISTENING OF THE EPITHELIAL CELLS with bile seems to be necessary for their special activity, enabling them to take up both glucose and peptones as well as the fat much more rapidly than in the case where they are deprived of a free supply of bile.

The bile seems also to stimulate a watery flow from the intestinal follicles, which, together with its tendency to excite peristalsis, causes a free and easy passage of the intestinal contents into and through the colon. (By some the bile is spoken-of as a lubricant to the colon, which, combined with the other effects, favors free movements and prevents constipation.)

Sixth :—The biliary fluid, once in the alimentary canal,

PREVENTS PUTREFACTIVE DECOMPOSITION of the contents of the intestinal tract and aids in perfecting digestive metabolism, and may therefore be looked upon as *Nature's chief internal antiseptic* as well as a digestant. This assertion is sustained by the rapidity with which decomposition in the intestine occurs whenever the biliary secretion is impaired, totally arrested, or changed in quality. Under such circumstances we notice a tendency to persistent constipation, clay-colored stools, and the distention of the intestines with gas. If the quantity of bile is abundant, but of poor quality, there is a tendency to black, tarry, and burning stools, with tympanites, and fermentation and incomplete digestion of the food-stuffs.

Seventh :—The constituents of the bile aid very materially in

THE FINAL SOLUTION OF THE ALBUMINOIDS, and also in their conversion into the diffusible peptones. This view is entertained after a careful study of a large number of cases, which has clearly shown that unless the old bile and that of a poor quality be expelled from the system, and its place taken by new bile of a better quality, the digestive disturbances cannot be overcome; but that so soon as this change is effected, digestion and assimilation become per-

fect and nutrition is carried on normally. This assertion is conclusively proven by the fact that the products of nitrogenous oxidation found in the urine are rapidly changed from an excess of uric acid, oxalates, lactates, and urates, and even glucose and albumin, to those of a normal katabolism; such as urea, uric acid, creatine, carbon di-oxide, and water,—in the normal percentage and total quantity.

A NATURAL ADJUVANT TO MILK OR OTHER
ANIMAL DIET.

When the Bile is administered with milk (as

indicated in the preceding study), it greatly aids in stimulating a copious flow of the milk-curdling ferment rennin and in the perfect precipitation of the casein in the fine feathery flakes so essential to a rapid and perfect digestion.

If the old and exhausted remnants of the natural bile have previously *been removed* from the system, all the digestive functions will be augmented and a rapid nutritive improvement developed, by the administration of the bile with any simple animal diet, such as, for instance, milk.

CLINICAL PAPERS

ON LIVE TOPICS.

TREATMENT OF PLEURISY.

By EDWIN RICKARDS, M. B. OXON.

[Read before the Birmingham and Midland Counties Branch of the
BRITISH MEDICAL ASSOCIATION.]

Pleurisy is a disease which arises under various conditions, which, to some extent, determine its treatment. The limit of a paper prevents my particularizing the modification of treatment requisite for all the various kinds of pleurisy arranged on an ætiological basis; nor can I suggest any classification of pleurisies on such a basis which would not involve much difference of opinion.

The differentiation of pleurisies into primary and secondary is not accepted by all authorities. There are those who doubt if inflammation of the pleural membrane is ever a primary condition, and hold that that membrane enjoys the same immunity from idiopathic inflammation as do other serous membranes, as the peritoneum and pericardium.

There is now, I believe, a general consensus of opinion, that in most cases of pleurisy the disorder is a secondary one—secondary to disease of some neighboring organ or adjoining part, or to some dyscrasic condition of the blood. Besides, in view of treatment I think that a pathological differentiation of pleurisies, is even better than an ætiological one. Often in secondary pleurisy we have to commence

treatment while in the dark as to its primary cause. I shall therefore, for the purpose of this address, speak of pleurisy as being of three kinds:

- 1.—Dry pleurisy, where there is little or no effusion into the pleural sac.
- 2.—Effusive pleurisy, where there is effusion which is fibro-serous and clear.
- 3.—Empyema, where there is purulent effusion.

DRY PLEURISY.

Dry pleurisy often does not give rise to symptoms which lead to its recognition, and cohesion of the two layers of the pleural membrane is the only *post-mortem* evidence of its pre-existence. It is admittedly a secondary affection. In lung-disease, pain is probably always an expression of pleurisy, which is often overshadowed by the substantive disease, and escapes treatment. Dry pleurisy in lung diseases, by sealing the lung to the chest wall, may prevent any escape of morbid products from the lung into the pleural sac, to the well-being of the individual. In dry pleurisy, pain is in most cases the symptom which leads to its diagnosis and most calls for help. Our present treatment of dry pleurisy differs from that of former times chiefly in our having given up heroic remedies. The disease being a conservative one, we must not, I think, be too busy

with our curative agents—we may safely trust largely to rest in bed. For the relief of pain we have discarded the lancet, and rely on a hot poultice or a few leeches locally, or, still better—where there is no contra-indication to the drug—a dose of opium.

EFFUSIVE PLEURISY.

Effusive pleurisy usually sets-in with definite symptoms; its pyrexia is accompanied by an outpouring of fluid into the pleural sac, and it is the accumulation of this fluid which causes all our anxiety; without it, there would be no danger to life, either from the immediate or remote effects of pleurisy; without it, pleurisy would be a disease of short duration.

The question here arises, can we, by treatment, prevent effusion in a pleurisy which, without treatment, would be effusive? I think not.

With this object in view, resort has been had to bleeding, blistering, poultices, purgatives, diuretics, diaphoretics, mercury, opium, aconite, quinine, and the more specific antipyretics; but, as far as my experience goes, without avail. I am ready to admit that, in some cases of acute pleurisy, as in most acute inflammatory affections, a calomel purge at the onset does good, by freeing the secretions and lowering arterial tension, and I have sometimes thought, that in the early stage of acute pleurisy, I have seen the severity and duration of of the febrile stage modified by a few small doses of calomel and opium; but I have never been able to satisfy myself that any method of treatment has prevented effusion. Then comes the question, have we any means of promoting the natural absorption of the effusion? Beyond keeping our patient in bed, and improving the general health, I think we have not. Blisters, iodine applications, dry diet, diaphoretics, mercury, and especially diuretics, have long enjoyed—I consider undeservedly—a great repute for this purpose. Diuretics are, in my opinion, absolutely useless, and, worse than that, are harmful. As commonly prescribed, they do not produce diuresis, but they always lower the vitality of the individual.

THORACENTESIS.

We can now, with impunity, artificially remove the effusion by aspiration or siphonage. The exact time when such operative procedure should be practiced will for some time to come be an unsolved problem. Aspiration and siphonage are used for the same purpose, namely, the extraction of fluid from the chest without the admission of air. The siphon has the advantages of exerting little force and of removing the fluid very gradually; but, on the other hand, the aspirator not infrequently succeeds in extracting fluid when the siphon fails. For aspiration or siphonage I always use a trocar and canula; for the latter operation I employ a No. 7 French gauge; for the former, a smaller one, No. 6 French gauge; but before resorting to either method, I always satisfy myself by an exploring syringe that there is fluid at the spot for operation, and—when I can choose the spot—I select the ninth interspace at the back, below the angle of the scapula.

It may be said that we practice aspiration for four objects. One being the prevention or relief of urgent symptoms, to prevent death from the effects of the pressure of rapid and excessive effusion. Many are the laws which have been laid down as to the time for operating under these circumstances; some have been founded on the extent of the fluid dulness, some on the quantity of fluid in the chest, some on the amount of the displacement of the heart, others on symptoms themselves of which dyspnoea and lividity are always the most prominent ones, and are due—for the most part at least—to the pressure of the effusion on the heart and its large vessels. The extent of fluid-dulness may be great, even up to the clavicle, and yet, provided the patient be kept in bed, need cause no anxiety; whereas with a much smaller extent of fluid-dulness, there may be alarming symptoms. The amount of fluid in the chest must always at best be but a speculation. There may be danger without much displacement of the heart; the most reliable guide to my mind is the symptom

dyspnœa. Dyspnœa gives timely warning of danger, and when it assumes the form of orthopnœa, delay in the removal of some fluid is dangerous. At one operation I generally remove about two pints of fluid, unless—before that amount has been extracted—troublesome cough or cardiac distress supervene, or unless the fluid, at first clear, should become decidedly bloody. These are indications for desisting from aspiration.

Our second object in aspiration is to shorten the duration of the disease. No one will dispute that in many cases of pleuritic effusion the fluid will entirely disappear, and the patient will get well, if kept in bed, without special treatment, in the course of six weeks. But if we can by aspiration do in twenty minutes what the natural process of absorption sometimes takes as many days to effect, surely by a harmless and trifling operation we are bound to save our patients weeks of illness. But more than that; we never can tell till late in the case—and sometimes till too late—whether the fluid will be removed by absorption in a few weeks or whether it will be absorbed at all. The question here arises: When should we operate for the object now under consideration? My answer is: Not until the febrile movement has ceased, unless that movement should continue more than a fortnight.

By operating in the early stage of the fever, I have found the pyrexia never extinguished and rarely reduced, and reaccumulation of fluid universal. I have, however, seen cessation of the fever on aspirating when the febrile stage has been unusually prolonged, and I have several times used the operation for this purpose successfully. There is no doubt in my mind that when the febrile stage is over, the sooner the fluid is removed the less likely it is to reaccumulate and the more rapid the recovery of the patient. For our present object I withdraw as much fluid as I can, desisting, however, if troublesome cough, cardiac distress, or faintness should supervene, or if the fluid, at first clear, should become decidedly blood-stained. If further aspirations are required, I

allow an interval of three days between them. Operating on the fall of the fever, more than a second aspiration is rarely requisite; one frequently suffices. Often after aspiration dulness on percussion at the back has lead me to think that there was reaccumulation of fluid, when the exploring needle proved that such was not the case.

Our third object in artificial removal of fluid is to prevent a pleuritic effusion from becoming chronic. Chronic pleuritic effusion, which I define as a pleuritic effusion which, in spite of treatment, persists for three or four months, is a grave disorder, more so, to my mind, than empyema; repeated aspirations are followed by repeated reaccumulations. The patients, broken-hearted, go from doctor to doctor, from hospital to hospital; some get well in the long run, but the run is a very long one; some die of phthisis; in some the effusion becomes purulent; in some the effusion is permanent. Some of my cases have gone from my observation uncured. One man recently under my care, who had had pleuritic effusion for four months, and had been submitted to treatment (short of aspiration), was cured in three months by rest in bed, a generous diet, tonics, and repeated aspirations. It seems to me probable that, as time goes on, we shall treat these cases as we do empyema,—by pleurotomy.

Chronic pleuritic effusion is, I believe, generally the result of allowing those who have had acute effusive pleurisy to walk about before the fluid has entirely disappeared. Fluid in the pleural cavity is always slow to go, and often remains stationary for an indefinite length of time, if the patient is walking about; and it is difficult to impress upon those who are getting well of acute effusive pleurisy, when the fever has subsided and they feel well, the importance of staying in bed until the fluid is quite gone.

Our fourth object in aspiration is to obviate the possibility of the collapsed lung becoming inexpandible; clear pleuritic fluid remaining in the chest a long time, but a period of time varying in different cases may, like empyema, cause the lung to become permanently incapable of

expansion. In one such case under my care, from the history it was judged that the chest had been full of fluid only six weeks. Such an effect in so short a time is, however, exceptional

in pleuritic effusion where the fluid is fibrinous. Such cases are incurable; aspiration converts them into empyemata.

[TO BE CONCLUDED IN NEXT NUMBER].

NEW REMEDIES,

AND NEW LIGHT ON OLD ONES.

EUROPHEN IN BURNS.

Dr. SIEBEL, of Elberfeld, reports (*Berl. Klin. Woch.*) on the use of EUROPHEN (Iodo-di-isobutyl-ortho-cresol)—previously described in this journal—in about thirty patients suffering from burns and the effects of caustics,—from the slightest forms to those of the third degree, and arising from all sorts of injurious agents (hot soda-lye, boiling glycerin, sulphuric and hydrochloric acids, burning alcohol, etc.). At first the EUROPHEN was applied in the same manner as it is customary to use iodoform,—that is, after cleansing the parts, opening the blisters, etc., the burned places were lightly covered with EUROPHEN powder, and then a dressing of sterilized gauze and cotton was applied, and the whole fixed with bandages. When the burned areas were extensive or could not readily be covered with the powder, the wounds were dressed with 10 0/0 EUROPHEN gauze.

Under this treatment exuberant granulations were formed, and the cicatrix was firm yet elastic. Occasionally there was observed firm agglutination of the gauze to the wound, which could not be completely obviated, even by interposing a layer of gutta-percha tissue. In consequence of this adhesion the exuberant granulations were frequently torn on renewing the dressing, and slight hæmorrhages produced. To avoid this disagreeable feature the medicament was subsequently used in the form of an ointment, at first of a strength of 10 per cent. As the latter, however, produced irritation in some instances, and in one case a slight eczema, its strength was diminished, and finally a 3 0/0 ointment of the following composition was adopted :

EuropHEN.	3 parts.
Olive Oil.	7 “
Dissolve, and add:	
Vaselin.	60 “
Lanolin.	30 “

Externally!

It is claimed that excellent results were obtained from this ointment, the secretions being markedly diminished. Owing to the latter effect it was possible to leave the dressings in place for three or four days, and to renew them easily and without pain. Severe burns of the third degree healed completely, it is alleged, after three or four dressings; the pains were relieved from the moment the ointment was applied.

Unfavorable effects or symptoms of poisoning were never observed, aside from the irritation produced by the stronger ointments.

On the ground of these observations Dr. SIEBEL regards EUROPHEN, in 3 0/0 ointments, superior to iodoform for burns; besides the absence of all disagreeable odor, there is said to be no danger from toxic effects.

GLYCERIN AS AN INDUCER OF PREMATURE LABOR.

Dr. PELZER has published (*Centralbl. für Gyn.*) his experience with injections of GLYCERIN as a means of inducing premature labor. He employs chemically pure, sterilized GLYCERIN, and injects 100 cubic centimetres [3 3/8 fl. oz.] between the membranes and the uterine wall—proper precautions being taken, of course, against sepsis, and against the entrance of air into the uterine cavity. It is claimed that as a result of this treatment regular pains soon set in, the membranes present well, and labor is easy. In two cases in which labor was induced on account of contracted pelvis, the pains set-

in within half an hour and an hour respectively.

In the author's opinion, GLYCERIN injections are valuable, not only for the induction of premature labor, but also for accelerating delivery at full term; they are very efficacious also in uterine atony.

IODIZED COLLODION IN TINEA TONSURANS.

At a recent meeting of the SOCIÉTÉ DE MÉDECINE PRATIQUE at Paris, Dr. E. TISON reported a well defined case of tinea tonsurans successfully treated with IODIZED COLLODION (1:30) after many other remedies—among them some secret ones—had been used in vain. The following plan was pursued: First the hairs were cut as close as possible; then the scalp was rubbed with Van Swieten's solution (a 1:1000 solution of corrosive sublimate), and a thick coat of IODIZED COLLODION applied to each patch, passing a little beyond the limits of the diseased parts. In drying, this preparation formed a pellicle which cracked at the end of a week and fell away in pieces. By means of two inunctions of mercurial solution (night and morning) all the fragments of the pellicle were caused to fall off, and then the IODIZED COLLODION was reapplied.

After the third application the denuded patches were covered with downy hair, which gradually assumed the thickness and color of the other hairs. With iodine alone, tried on one of the spots, the result was *nil*. Nevertheless, the latter is considered the medicinally active part of the IODIZED COLLODION; but the collodion is regarded as indispensable, maintaining the iodine in permanent contact with the skin, and preventing its sublimation.

IODOLE IN OZÆNA.

Dr. TURBAN, of Davos, reports (*Ther. Monatsh.*) on the excellent results he obtained in ten cases of ozæna from the use of IODOLE in the following formula:

Iodole	} equal parts.
Tannin	
Powdered Borax.	

Snuff!—Use, at first, 5–6 times daily; later on, 3 times daily;—a pinch for each nostril.

No other local measures (irrigation, etc.) whatever were combined with the employment of this snuff.

As the result of this treatment, it is reported that all secretion and formation of crusts disappeared, or, at least, diminished to such an extent that they no longer annoyed the patients, and the fœtor disappeared in every case. It is stated that the IODOLE snuff was specially efficacious in those cases where, besides the atrophy, there were some hypertrophied points in the nasal mucous membrane.

LACTIC-ACID BOUGIES IN TUBERCULOUS FISTULAS.

LACTIC-ACID bougies have recently been recommended by Dr. ZIPPEL (*Pharm. Zeit.*) as an efficacious means of treating tuberculous fistulas. They may be made by gently heating a mixture of 5 parts each of gelatin, water and lactic acid, until a homogeneous mass is obtained, then adding 3 parts of menthol, and finally pouring into molds. After thorough chilling, these bougies are dried over calcium chloride for 8–10 days, whereby the proportion of lactic acid is raised, through loss of water, to 40 per cent. They can then be coated with collodion, the coating to be removed when they are about to be used, or they may be preserved in oil containing menthol in solution. The menthol is reported to mitigate the pain produced by the application of the bougies.

If made with starch or tragacanth paste instead of gelatin, the bougies are firmer but less elastic.

METALLIC SALTS. (*)

AMMONIUM BORO-BENZOATE is a white crystalline powder, readily soluble in water.

BISMUTH AND CERIUM, SALICYLATE, is a reddish-white powder, insoluble in water and in alcohol. According to Dr. R. SALAYA (*Rev. de*

(*) Those of the substances here named which are *not therapeutically described*, will be so as soon as the necessary data are received.

Cienc. Med. de Barc.), it is a most efficacious remedy in gastro-intestinal diseases, particularly in the diarrhœas and dysentery consequent upon ulceration of the intestine. Dose-statements are wanting.

CALCIUM SALICYLATE— $\text{Ca C}_7\text{H}_4\text{O}_3 + \text{H}_2\text{O}$ —is a white, crystalline, odorless and tasteless powder; difficultly soluble in water. It has been employed in infantile diarrhœa and in gastro-enteritis in doses of 0.5–1.5 grammes [8–23 grains]—either alone, or in combination with bismuth salicylate.

CERIUM BROMATE— $\text{Ce}_2 (\text{Br O}_3)_6 + 18 \text{H}_2\text{O}$ —occurs in colorless, leafy crystals; readily soluble in water.

FERRO-MANGANIC PEPTONATE, SOLUTION, contains 0.4% of iron, 0.1% of manganese, and 1% of peptone. The dose in anæmia and chlorosis is a teaspoonful three times daily.

IODINE CYANIDE— ICN —occurs in colorless needles of a pungent odor; difficultly soluble in water, more easily so in alcohol and in ether; melting-point 146.5°C [295.7°F]. Pharmacologic investigations by M. GOLDFARB have shown that in cold- and warm-blooded animals IODINE CYANIDE acts chiefly as a violent blood- and protoplasm-poison; however, its poisonousness is considerably less than that of pure hydrocyanic acid. According to Prof. KOBERT, it is a universal remedy for annihilating all lower animals, serviceable in the preservation of entomological collections, furs, etc.

LEAD ACETO-TARTRATE is in colorless crystals; readily soluble in water. It possesses the same astringent properties as the acetate.

LEAD GLYCEROLATE— $\text{Pb} (\text{C}_3\text{H}_5\text{O}_4)_2$ —is a white crystalline powder; difficultly soluble in cold, but easily so in hot water.

LITHIUM BENZO-SALICYLATE occurs in colorless crystals; easily and clearly soluble in water.

LITHIUM BORO-SULPHITE is a white crystalline salt; only sparingly and turbidly soluble in hot water.

LITHIUM DI-THIO-SALICYLATE (I) is a yellow powder; easily soluble in water, but insoluble in alcohol. Physiological data are still wanting.

LITHIUM DI-THIO-SALICYLATE (II) is a gray,

very hygroscopic powder; soluble in water and in alcohol. It has been employed in articular rheumatism and in gout. Definite dose-statements are yet wanting.

LITHIUM GUAIACATE— $\text{Li}_2\text{C}_{20}\text{H}_{24}\text{O}_4$ —occurs as a brown amorphous, dry mass; readily soluble in water.

MAGNESIA GYNOCARDATE is a white powder; insoluble in water. It has been employed with good results in lepra. (For a formula, see MERCK'S BULLETIN, Vol. IV, p. 124.)

MANGANESE ALBUMINATE occurs in yellowish-white scales; clearly soluble in water.

MERCUR-THYMOL SALICYLATE occurs as a white, amorphous powder; insoluble in the ordinary solvents.

POTASSIUM BORO-SULPHITE is a white crystalline salt; soluble in water.

SODIUM CHLORO-BORATE is a white crystalline powder; easily soluble in water. It is a powerful antiseptic, admirably adapted both to medical and technical uses.

SODIUM DI-THIO-SALICYLATE (I) is a yellowish-white powder; easily and clearly soluble in water. It has thus far been employed only in veterinary medicine—in foot-and-mouth disease. In this affection 2.5–5% aqueous solutions, used as paints, have proved very serviceable.

SODIUM GYNOCARDATE occurs as a yellowish-white powder; soluble in water, only poorly and turbidly so in alcohol. It has been employed of late in lepra. Dose:—1 gramme [15 grains] twice daily, before meals—in gelatine capsules.

SODIUM SULPHO-RICINATE is a brown, syrupy fluid; easily and completely soluble in water and in alcohol. It is reported to be a good solvent of iodine, iodoform, etc.

STRONTIUM BROMIDE, *crystals*, — $\text{Sr Br}_2 + 6\text{H}_2\text{O}$,—occurs in long, colorless needles; easily soluble in water. Dose:—2–4 grammes [30–60 grains] daily—taken before meals.—Strontium Bromide, *anhydrous*, is a white powder; soluble in water, only slightly so in alcohol. 0.7 gramme [11 grains] of the anhydrous corresponds to 1 gramme [15 grains] of the crystallized Strontium Bromide.

STRONTIUM LACTATE— $\text{Sr}(\text{C}_3\text{H}_5\text{O}_3)_2 + 3\text{H}_2\text{O}$
—is a white, granular powder; clearly soluble
in water. E. MERCK.

MERCURY SUCCINATE IN SYPHILIS.

MERCURY SUCCINATE is obtained by treating, in the presence of boiling water, the succin-imide with the red oxide of mercury. It crystallizes in long colorless needles; very soluble in water and in alcohol.

Dr. JULLIEN, of Paris, recommends this salt for the hypodermatic treatment of syphilis, in 1:400 solution in distilled water. Of this solution each cubic centimetre [16 min.] contains about two and a half milligrammes [$\frac{1}{25}$ grain] of MERCURY SUCCINATE; this is the most that should be injected in twenty-four hours. The injections are reported to be neither painful nor irritating provided the succin-imide from which the succinate was made was not prepared by distillation of ammonium succinate; and the treatment is well borne. Dr. JULLIEN has cured the various syphilitic affections, particularly those of the secondary period, with an average of 22 injections.

Internally, the treatment with MERCURY SUCCINATE is said to be much more protracted, and the dose twice as large, as the hypodermatic (2–3 milligrammes [$\frac{1}{30}$ – $\frac{1}{20}$ grain] in pills). Furthermore, it is maintained that the subcutaneous injections are much less apt to produce symptoms of mercurialism, and are much more prompt in their action than the pills.

SALOL IN VESICAL CATARRH.

Dr. B. ARNOLD, of Stuttgart, has collected (*Ther. Monatsh.*) all the observations thus far published on the use of SALOL in vesical catarrh, acute, chronic, and even tuberculous. The usual dose was 2 grammes [30 grains], 2–3–4 times daily, in powders.

From his own experience, as well as that of others who have employed SALOL in cystitis, the author deduces the following facts:

- 1.—SALOL renders the alkaline urine acid.
- 2.—It removes the foul odor.

3.—The turbid urine becomes clear; the muco-purulent sediment steadily decreases, gets lighter in weight and becomes more flocculent, and usually disappears completely.

4.—The urine is generally increased in quantity.

5.—The remedy is very well borne by the stomach, even when administered for a long time; surpassing, in this respect, all the other medicaments recommended in cystitis.

6.—It is a good adjuvant to vesical irrigations, particularly when only very weak antiseptic solutions are tolerated.

— In harmony with Dr. CASPER, Dr. ARNOLD considers SALOL an excellent remedy against acute and chronic catarrh of the bladder, one which favorably compares with any that has thus far been recommended against this affection.

SULPHO-RICINATED PHENOL IN DIPHTHERIA.

SULPHO-RICINATED PHENOL, a compound consisting of 20 % of phenol and 80 % of sodium sulpho-ricinate, had previously been experimented with by several French physicians, particularly by Dr. GRANCHER. Now Dr. A. JOSIAS, of Paris, reports (*Méd. Moderne*) on the very favorable results he has obtained from its use in thirty-three cases of genuine diphtheria at the HÔPITAL DES ENFANTS MALADES, Paris. His method is as follows:

First the false membranes are dried by means of absorbent cotton, and then touched with a tampon imbrued with the SULPHO-RICINATED PHENOL. This application is made 5 or 6 times in twenty-four hours,—four times during the day, and once or twice at night. Between the applications the mouth is irrigated with lime water, which is said to soften, and facilitate the detachment of, the false membranes. Of course, the vital forces are sustained by suitable alimentation, tonics, and stimulants.

According to Dr. JOSIAS, the touching with SULPHO-RICINATED PHENOL is always well borne, only occasionally provoking a burning sensation, which, however, never gives rise to

any complaint; and, under its influence, the false membranes immediately take on an opaline, bluish coloration, recalling the aspect of a mucous patch cauterized with silver nitrate.

As for the duration of the treatment, it is stated that in favorable and mild cases, two or three days suffice to obtain a cure; in the grave and protracted forms eight to ten days are necessary; while in those of a medium degree of severity, which are the most frequent, five or six days is the rule.

In conclusion, it is maintained that SULPHORICINATED PHENOL, as applied to the treatment of diphtheria, energetically and successfully combats that disease; and that the method above recommended, based, as it is, on a collection of precise observations under bacteriologic control, compares favorably with any of the medications that have been vaunted in diphtheria. As a safeguard against relapses, it is recommended to bathe the part three or four times a day with a 1:30 solution of salicylic acid in glycerin, and to occasionally rinse the mouth with a 3 0/0 solution of boric acid.

ZINC CHLORIDE IN RECURRENT DISLOCATION.

Prof. DUBRUEIL reports a case of recurrent dislocation of the right shoulder successfully treated at the HÔPITAL SAINT-ELOI (Montpellier) by means of intra-articular injections of a 10 0/0 solution of ZINC CHLORIDE. The patient was a man of 40, of excellent health, and with a well-developed and muscular system, the latter fact affording the only means of explaining the singular facility with which the shoulder became displaced—dislocations occurring five times in two and a half months. After having vainly tried all possible means of preventing a recurrence of the trouble, the idea struck the author that by utilizing the sclerogenic property of injections of ZINC CHLORIDE, recommended by Prof. LANNELONGUE in tuberculous arthritis, he could, perhaps, attain the desired result. In accordance, six injections, each consisting of two drops of the 10 0/0 solution, were made into different points of the an-

tero-superior portion of the shoulder, beneath the acromion-process. Of course, all due antiseptic precautions were taken, before as well as after injection, and the canula of the syringe was forced into the tissue for a sufficient depth to enable the liquid to come into contact with the capsule. These injections, although followed by slight pain, never provoked any reaction.

After the sixth injection the patient was ordered to use his arm freely and unrestrictedly, for the purpose of seeing whether dislocation would again recur; but during the twelve days he yet remained at the hospital no such accident happened, although the patient frequently had to perform forced movements of abduction, of circumduction, and of rotation. When the case was discharged from the hospital there was no other trace of former dislocation than a very slight crackling in the acromio-coracoid bursa during the act of abduction.

ZINC LACTATE IN BLINDNESS.

At a recent meeting of the ACADÉMIE DE MÉDECINE at Paris, Dr. F. BOÉ presented a patient in whom there almost suddenly developed a left amblyopia, without apparent modification of the fundus. On the right side there was hemianopsia, central vision being preserved. Specific treatment having produced no result, and the patient giving a history of hereditary hysteria, the author prescribed ZINC LACTATE for several months, in doses of 24 centigrammes [$3\frac{3}{4}$ grains] daily. As a result of this medication, sight partly returned in the blind eye.

Dr. DE GRÄFE has published an analogous case of blindness cured by the use of ZINC LACTATE.

TANNIC ACID, in aqueous solution, has been recommended for removing the odor of *iodoform* from the hands and utensils.

LITHIUM SALICYLATE is considered by Dr. VULPIAN more efficacious than sodium salicylate in acute and progressive sub-acute articular *rheumatism*.

PRACTICAL HINTS

ON METHODS IN THERAPY, PHARMACY, ETC.

CHLOROFORMIC COLLAPSE.

At Prof. KÖNING's surgical clinic (Göttingen) it has been a custom, in cases of chloroformic collapse, to resort to compression of the cardiac region 30–40 times a minute, while pressure is being exerted on the thorax for the purpose of provoking artificial movements of expiration. This compression of the heart, by bringing-on a depletion of the dilated and over-filled right ventricle, contributes in an efficient manner to the re-establishment of the circulation and of respiration.

Recently Dr. MASS, assistant at the above clinic, has improved the procedure in question, by exercising over the cardiac region much *more frequent* pressure than had been customary. By this means he claims to have saved two patients in whom the usual method had failed. This is the way it is advised to proceed in cases of apparent death from chloroform: (*Berl. Klin. Woch.*)—The doctor stands to the left of the patient, and with the ball of the thumb of his right hand he exercises very energetic pressure between the apex of the heart and the border of the sternum. These pressions are repeated about 120 times a minute. Under their influence Dr. MASS says the pupils (which are always dilated) contract, and an artificial carotid pulse appears; then after a certain time, spontaneous respiratory movements take place. Compression may now be suspended, as long as the pupils remain contracted and the respiratory movements continue. Then it is resumed and continued until the circulation and respiration have been definitely re-established.

EMPHYEMA;—OPERATIVE TREATMENT.

According to Prof. O. ROSENBACH of Breslau, resection of rib, in empyema, is only necessary when, as is very rarely the case, the ribs overlap and lie upon each other, or when the disease is of long standing—over six months.

In the latter case it is held that the pleural cavity must be diminished in size by a thoroplastic operation.

In operating upon an empyema the professor makes an incision 4–5 centimetres [$1\frac{3}{5}$ –2 inches] long, and introduces two stout-walled drainage tubes. In fifteen cases recently treated by him in this manner, the average duration was six weeks, and in the last two—which were quite severe—only three and a-half weeks.

With regard to exploration, the author (*Deut. Med. Woch.*) says the disadvantage is that a negative result gives no reliable information. After introducing the needle, the piston is drawn back one-third way, and the instrument carefully withdrawn while the piston is maintained in its position. If the piston be allowed to spring back, not only may the drop or two of pus in the needle be lost, but there is danger of infecting other, as yet healthy, parts. The contents of the needle are then examined microscopically: if pus-cells are present, operation may be resorted-to, or further exploration with a larger needle made.

GLEET;—IMPROVED TREATMENT.

Dr. A. PHILIPPSON, of Hamburg, has introduced a method of treating gleet which, besides being very simple, he considers more efficacious than all the others now in vogue. His plan is as follows: The patient is seen early in the morning, before he has urinated. A rubber catheter is introduced into the urethra up to the point at which an obstacle is encountered, that is, as far as the membranous portion, which becomes occluded by reflex-action of the constrictor muscle. The anterior part of the urethra is then washed out with a 1:3000 solution of zinc sulpho-phenate, by means of a syringe having a capacity of 150 cubic centimetres [5 fl. oz.], the patient being in the upright posture. The quantity of

flocculent matter in the return fluid serves as a criterion of the severity of the affection in the anterior urethra. The patient is then requested to urinate. The examination of this urine will show whether there exists any blennorrhagia of the posterior urethra or not.

If, as happens in the majority of cases, the posterior urethra is affected, the following treatment is instituted: A soft catheter, previously lubricated with a little borated glycerin, is introduced into the bladder, and the urine drawn off (it is desirable that the patient retain a little urine before presenting himself to the doctor, so that the latter may tell when the catheter has entered the bladder). Then, by means of a syringe, 150 grammes [5 fl. oz.] of a weak solution of silver nitrate are injected, after which the catheter is withdrawn and the patient asked to empty his bladder in the natural way. By this procedure the entire urethra is washed with the medicated solution, which is prepared fresh each time and progressively increased in strength. The author's favorite formula for the *stock* solution is:

Silver Nitrate..... 3 i [4 gm.].

Distilled Water..... fl. 3 ii [8 gm.].

Dispense in a black bottle!—Externally.

For the first injection, three drops of this solution are poured into 150 grammes [5 fl. oz.] of water, and the whole injected, as directed above. If the burning sensation produced by this injection is inconsiderable and does not last longer than an hour, the concentration of the injection is daily increased by one drop of the silver solution until 12 drops (the maximum) is reached. During the first week the injections are made once a day; after that, once in two, and finally only once in three days. It is claimed that cure is obtained in 5–6 weeks, on an average; sometimes even in 15 days. The longest duration of the treatment in Dr. PHILIPPSON'S cases was 12½ weeks.

MALARIAL BLOOD IN SCROPHULOSIS.

Dr. S. CALANDRUCCIO (*Wien. Med. Presse*) has observed that scrophulosis is a very rare affection in malarial countries; that the few

individuals of malarial regions who are scrofulous, are refractory towards malaria; and that many cases of scrofula considerably improve after an intercurrent attack of intermittent fever. These observations suggested the treatment of scrophulosis by means of subcutaneous injections of malarial blood. Accordingly, 1–1½ grammes [15–23 min.] of blood, freshly drawn from a malarial patient of otherwise robust constitution, were injected under the skin of the forearm in four individuals suffering from mild forms of scrofula (glandular swellings, cutaneous, and ocular affections). As a result, after from six to fourteen days, malarial fever developed in the patients. The scrofulous symptoms grew worse at first; but, after from six to eight febrile attacks, they began to get milder, and soon disappeared entirely—a perfect cure of the scrophulosis resulting. The remaining malaria was then successfully treated with quinine.

In all the cases in which this treatment was instituted, the effect still persisted at the date of this report—some six months later. Dr. CALANDRUCCIO furthermore maintains that by means of injections of malarial blood, in which the plasmodia have been previously killed, diluted with distilled water, mild scrophulosis can be cured *without* provoking malaria; at all events, this view is reported to have been fully borne out in two cases.

MAMMARY ABSCESS IN THE NEW-BORN.

Dr. COMBY recently read a paper on this subject before the SOCIÉTÉ DES HÔPITAUX at Paris, of which the following is an abstract.

In the new-born, mammary congestion is very frequent, yea almost physiologic, and may be accompanied by lacteal secretion lasting two or three weeks and then disappearing spontaneously. The composition of this milk is analogous to, if not identical with, that of woman's milk. This congestion attains very variable degrees, according to the individual; in rare cases it ends in suppuration, which is followed by atrophy of the gland or cicatricial retraction of the nipple—a particularly un-

pleasant accident in girls, since it may later-on prevent suckling.

To prevent the suppuration it is customary to evacuate the gland by a sort of manual compression. This practice, however, is condemn-able: if roughly carried out it may lead to des-truction of the gland; if insufficiently performed it may infect, and directly produce what it is intended to avoid—abscess. In place of squeez-ing out the gland, we should obtain aseptic protection of the tumefied parts by means, for instance, of Vigo's plaster (*Emplastrum cum hydrargyro*,—Cod.), or, if this prove too irritat-ing, brown plaster (*Emplastrum fuscum*,—Ph. Germ.).

MORPHINE INJECTIONS.

The delay and annoyance which the dried piston of a hypodermic syringe occasions, is well known to every medical man. Not infre-quently he is called, probably in the night, to a patient suffering perhaps from intense spasm of the stomach. Pocketing his syringe and injec-tion or tablets he hurries to the sickroom, but finds the former will not work from shrinkage of the piston. This necessitates a waste of ten minutes pumping warm water in and out to remedy the defect. During this awkward in-terval the thoughts and sometimes the words of his patient regarding him are anything but com-plimentary, and even after all this his syringe is far from satisfactory in its working.

To obviate this difficulty Dr. J. G. SHARP, of Edinburgh, has been employing, during the past ten months, what he believes to be an im-proved hypodermic injection of morphine, the formula for which is as follows (*Pharm. Journ. and Trans.*):

Morphine Acetate (or Hydroch.)	gr. XXIV	[1.5 gm.].
Glycerin.....	fl. ℥iii	[13.0 "].
Alcohol.....	fl. ℥i	[3.5 "].
Distilled Water...enough to make	fl. ℥i	[30.0 "].
Mix, dissolve in the cold, and filter !		

This makes a preparation of the strength of 1 grain in 20 minims. Five minims, therefore, represent ¼ of a grain, and this is considered by the author just the proper amount and a convenient quantity for ordinary injection. In

the above preparation the glycerin, being a hygroscopic body, keeps the piston moist. Hence, the syringe is always in working order: for, although it may be washed out once in antiseptic lotion after use, it is maintained there is still enough glycerin left on the piston to keep it in a hygroscopic state.

The above is regarded as possessing the further advantages of being perfectly neutral, uniform in strength, and keeping well for months. Dr. SHARP would also suggest that glycerin in the proportion of 3 fluid drams to each fluid ounce be added to *all* other hypo-dermic injections in common use. There is ap-parently no practical objection to the small per-centage of alcohol in the above formula, and it is added to facilitate diffusion of the injection.

It has been said that either acetate or hydro-chlorate of morphine may be used; but the author prefers the latter because it is more stable and can always be procured without delay. It is true that the acetate is not so likely to cause nausea as the hydrochlorate; but this is a small matter in the case of a hypodermic injection. On exposure of the solution to an unusually low temperature during several nights a slight sepa-ration of crystals was observed. On testing its stability by exposure to a temperature of 0° C [32 F] for eight hours, it was found to remain perfectly bright. There is therefore not much risk under *ordinary* conditions; but, if con-sidered necessary, all chance of separation would be avoided, according to Dr. SHARP, by adding another fluid dram of glycerin to the ounce of injection.

POSITION OF THE PATIENT IN AUSCULTA-TION OF THE HEART.

According to Dr. AZONLAY, to auscultate the heart under the most favorable conditions, it is necessary to place the subject on his back, as horizontally as possible, and strongly raise his head on a bolster. His arms are maintained vertical and relaxed, and the inferior extrem-ities are raised above the plane of the bed at an angle of 40°–50°. When the legs cannot be raised, the arms alone are elevated.

In this position, according to the author, the physiological and pathological sounds of the heart can be heard with the greatest degree of distinctness; they are at the same time rendered a little slower, which makes their observation all the more easy. The causes of these modifications are said to be the following: The venous blood arrives in greater quantity at the right side of the heart; the left side, obliged to overcome the resistance occasioned by the elevation of the extremities, consequently does a more considerable piece of work.

SYPHILIS;—ITS HYPODERMIC TREATMENT.

Dr. SIMON T. NIETO (*Gaz. Med. de Catal.*) does not believe that the hypodermic treatment of syphilis ought to be considered as an exclusive method; he regards it only as an adjuvant. It combines the advantages of having rapid effects and of less frequently producing salivation than other methods of treatment. On the other hand it has the drawbacks of causing painful local reaction and abscesses; hence the difficulty of generalizing it in practice. It is recommended to exclude from this mode of treatment the insoluble mercurial preparations, particularly calomel—which, besides its slight efficacy, often produces local disorders. As for the soluble mercurials, they are considered as possessing true therapeutic properties and as much less frequently occasioning abscesses and diverse inflammations; they are therefore preferred.

Mercury peptonate is regarded as the most tolerable of the soluble preparations, especially in young and delicate subjects and in cases of recent and benign syphilis. As for the bichloride, it is reserved, on account of its great activity, for robust individuals and for severe cases of the disease—notably in visceral, pulmonary, hepatic, and nervous manifestations.

To avoid salivation, Dr. NIETO employs, simultaneously with the hypodermic treatment, potassium chlorate internally, and maintains complete asepsis of the mouth. The pain from the injection may be avoided, in pusillanimous patients, by means of the ether-spray.

For intramuscular injections the author prefers corrosive sublimate, more particularly in solution of ammonium chloride. The gluteal region is chosen for these injections; for those of the peptonate, the shoulder. Distilled water is the only vehicle used for these salts,—oil, glycerin, vaselin, lanolin, etc., being excluded.

THE VELOCIPEDE AS A THERAPEUTIC AGENT.

Generally articles relating to the hygienic advantages of the velocipede are inserted in sporting journals; it is therefore quite interesting to see some appear in medical journals, as has of late been the case in France. Dr. O. JENNINGS, of Paris, thinks (*Sem. Méd.*) that the velocipede is a means of medical gymnastics which is inexpensive and does not require any apprenticeship, since a child or an old man can learn to use a tricycle quite well in a day. This exercise is taken in the open air, and can be graded as to speed and force. The activity of the muscular system favors the circulation, and the movements of the heart and of the lungs are accelerated; oxidation and the organic changes become more perfect, venous stases and congestions disappear. It is not only the lower extremities that are in motion; but contractions are also produced in the muscles of the trunk and of the arms; the thorax increases in size.

Although many physicians interdict the use of the velocipede in persons affected with varices or with hernias; that exercise, in the author's opinion, is not only harmless, but it may even be curative of the affection. The case is cited of a varicose physician, who owing to the use of the cycle, gained power to take long walks on foot. In consequence of the muscular efforts necessary to propel the machine, the muscles of the lower region of the abdomen and those of the thigh, as well as the aponeuroses, acquire greater power, and thus give the individual a more resistant basis, which, in certain cases, prevents the appearance of hernias. The employment of rubber and pneumatic tires avoids or moderates the jolting, which has been accused of producing an injurious vibration in the nerve-

centres. The excitation of the external genitals in women, with which the velocipede has also been reproached, Dr. JENNINGS says does not exist; and some practitioners, who, dreading this inconvenience, primitively interdicted the use of the velocipede in women, do not to-day hesitate to prescribe it.

The perineal pressure produced by the saddle may be avoided, according to the author, by the employment of an air-cushion, and by a proper disposition of the pedals. Compression of the urethra against the saddle can bring-on very frequent desire to urinate, but only in aged individuals who make long and too rapid trips. Dr. JENNINGS has consulted about three hundred physicians on the inconveniences of cyclism. All have agreed that the arthritides and other accidents survening upon the use of the velocipede, showed themselves only in professional wheel-men, or in those who do not know how to moderate their enthusiasm, and indulge in true velocipedic excesses. An aged man who indulges in rapid ascent of hills, exposes himself to accidents, because he over-exerts himself. A beginner will experience fatigue, as in the commencement of all gymnastic exercises; but this fatigue will not be long in disappearing with use.

The only therapeutic cyclism is moderate and reasonable, and, in the author's opinion, it cannot be reproached with anything serious. It is applicable to the treatment of a great number of diseases. The first group comprises those due to insufficient oxidation—gout and rheumatism, and their derivatives. It is maintained that gout is not produced by moderate exercises save in the cases where the individuals are insufficiently enthusiastic; and that when sufficient enthusiasm is evinced, exercise brings-on, contrary to what happens in the non-spirited, a diminution of the uric acid and of the other organic acid products. The author has occasionally observed gouty painfulness to follow upon the first ride; but this inconvenience always disappeared after a few days. In a gouty and dyspeptic woman of 47 years, observed by Dr. TURNER, all the symptoms

vanished in less than three months, and her weight increased by thirteen pounds. According to Dr. JENNINGS, the velocipede is the remedy *par excellence* against chronic rheumatism and arthritis; it has ameliorated metritis and metrorrhagia, which improvement is attributed to a sort of uterine massage produced by the motion of the thighs and pelvis. He considers it an imitation of Oertel's method, which advises the gradual ascension of mountains in cases of cardiac affections. The case is cited of a young man affected with aortic insufficiency who travels, without fatigue, 12-13 kilometres [$7\frac{1}{4}$ -8 miles] a day on the bicycle; and that of several patients in whom the use of the bicycle suppressed epistaxis and cardiac palpitations. He has seen notable improvement in consumptives, asthmatics, and dyspeptics.

One of the physicians Dr. JENNINGS consulted, cited cases of pyrosis and eructations produced by the velocipede, after meals; but these inconveniences are doubtlessly attributable to abuse.

It is further maintained that the sugar may disappear from the urine of diabetic patients upon using the cycle; the latter would be the sovereign remedy against hypochondriasis, neurasthenia, agoraphobia, and morphinomania; it may be recommended even to the feeblest and most debilitated persons; it is a sovereign remedy against obesity, as are most of the physical exercises.

It is probable that many objections will be raised against the views of the author, who is, as is apparent, a cycle enthusiast. Dr. JENNINGS has written an interesting book entitled "Health with the Tricycle."

ELECTROLYSIS IN CIRCUMSCRIBED SCLERODERMA.

At a meeting of the SOCIÉTÉ DE MÉDECINE MODERNE, Dr. BROcq, some time ago, presented a patient affected with circumscribed scleroderma of the arm and forearm. A long and very thick band could be seen, immovable at the level of the skin, and firmly adherent to

the subjacent fascia and muscles. The affection was of two years' standing, and had resisted all forms of treatment.

Dr. BESNIER advised electrolysis, which was then resorted-to. In consequence of this new treatment, the further spread of the disease was arrested even by the first application, and the trouble progressively disappeared. However, at one time there remained a slight induration of the skin on the lower part of the forearm, just where the electrolytic punctures had been made. In fact, this persistence was even attributed to the punctures; because the induration vanished upon making the applications at longer intervals, and inserting the needle obliquely and in such a manner that the skin alone was wounded.

It is known that the circumscribed variety of scleroderma always ends in cure; but in the case under consideration the spontaneous healing was very slow.

Very fine needles and very weak currents must be employed; otherwise, according to Dr. BESNIER, sclerotic effects will be produced. The use of an electrolytic comb is condemned, on the grounds that it is difficult to localize its action, and that, by touching with it the parts adjacent to the diseased tissues, keloid may be caused. It is recommended to introduce the needle obliquely.

RESECTION OF THE ASTRAGALUS OR OS CALCIS BY BOGDANIK'S METHOD.

This procedure, which the author—Dr. J. BOGDANIK, physician-in-chief of the GENERAL HOSPITAL at Biala, Austria—first studied on the cadavre and subsequently applied with success in two patients, offers, it is claimed (*Centralblatt für Chir.*), the following advantages: The wound of the soft parts is very small; all wounding of the vessels, tendons, muscles, and nerves is avoided; the situation of the cicatrix is the most favorable possible; finally, the shape of the foot is preserved—particularly in the cases where an osseous suture is applied. The method is as follows:

The surgeon commences the incision immedi-

ately below the external malleolus, penetrating at once down to the os calcis. The incision is then prolonged downwards and backwards towards the middle of the heel, stopping at about 1 centimetre [$\frac{2}{5}$ inch] from the plantar surface, and then ascending on the other side of the foot towards the internal malleolus. The os calcis is then sawn through in the same direction, while an assistant holds the foot forcibly flexed upon the leg. As soon as the saw has traversed the calcaneum, the dorsum of the foot can be brought into contact with the anterior aspect of the leg, and the astragalo-calcanean articulation is thus laid bare.

The astragalus can then be seized with the bone-forceps and enucleated by means of the bistoury and scissors. It is advisable also to prolong the incision a little in the direction of the tendo Achillis, close to the two malleoli, so as to be able to move the superior fragment of the calcaneum upwards. The assistants draw aside, by means of dull hooks, all the arteries and the tendons that are seen in the wound. The carious parts of the os calcis as well as those of the articular extremities of the tibia and of the fibula (which can easily be reached after the extraction of the astragalus) having been removed by grattage, the two fragments of the calcaneum are united by means of osseous suturing, and the external wound is closed with a catgut suture—a drainage tube being inserted into the angle of the wound.

BENZOIC ACID combined with Borax, 5 grains of each in an ounce of water every two hours, is lauded in *painful micturition* caused by an excess of uric acid.

PHENYL-URETHANE is regarded by Dr. SANSONI a twice as powerful *antipyretic* as antipyrine,—the average dose being stated as 0.5 gramme [$7\frac{1}{2}$ grains].

POTASSIUM BI-CHROMATE, in doses of $\frac{1}{100}$ grain three or four times daily, is reported as relieving many cases of irritation and congestion of the *Schneiderian membrane*.

GATHERED FORMULAS.

65.—Cholagogue Tablets.

[PORTER.]

Arsenious Acid..... } of each, 6 centigr. [1 grain].
 Corrosive Sublimate.. }
 Powdered Ipecac 12 " [2 grains].
 Calomel..... 1 gramme [15 "].

Make into 15 tablets!—One every 3 or 4 hours until free catharsis; or one every second or third night,—as the exigency of the case may require.

66 to 69.—Dysmenorrhœa.—(Treatment.)

[PHILIPPEAU.]

POWDERS.

Antipyrine..... 2 grammes [$\frac{1}{2}$ dram].

Divide into eight powders!—Two at a dose for once only; then one every hour or half hour.

SOLUTION.

Hyoscine Hydrobromate.... 15 milligr. [$\frac{1}{4}$ grain].

Water..... 150 grammes [5 fl. oz.].

Teaspoonful every hour.

MIXTURE.

Chloral Hydrate..... 8 grammes [2 drams].

Strontium Bromide..... 10 " [$2\frac{1}{2}$ "].

Distilled Water..... 150 " [5 fl. oz.].

Teaspoonful three times daily, in a cupful of Infusion of Orange Leaves.

or:

Ammonium Chloride..... 8 grammes [2 drams].

Ammonium Bromide..... 16 " [4 "].

Distilled Water..... 320 " [$10\frac{3}{4}$ fl. oz.].

Tablespoonful three times a day, in sweetened water.

70.—Cracked Nipples.—(Prophylactic treatment.)

[J. THOMAS.]

OINTMENT.

Compound Benzoin Tinct... 1 gramme [16 minims].

Olive Oil 8 grammes [$2\frac{1}{4}$ fl. drams].

Lanolin 24 " [6 drams].

To be applied, after nursing the child, during the first fortnight.

71.—Acne.—(Treatment.)

[MONIN.]

LOTION.

Zinc Oxide..... 5 parts.

Alum..... 2 "

Soap Spirit..... 10 "

Glycerin..... 40 "

Apply every morning and night.

(It is recommended, besides, to take every other day a tablespoonful of a mixture of equal parts of Castor Oil and Glycerin as a purgative.)

72.—Dyspeptic Anodyne.

[COUTARET.]

MIXTURE.

"Fatty Ext. Cannabis Indica" 0.1 gramme [$1\frac{1}{2}$ gr.].

Chloroform Water (saturated) 300 grammes [10 fl. oz.].

Columbo Syrup..... 100 " [$2\frac{1}{2}$ "].

Tablespoonful every half hour until relieved.

73.—Kola and Coca as Tonics.—[HUCHARD.]

MIXTURE.

Kola Tincture..... } equal parts.
 Coca Tincture..... }

Thirty drops at 8 o'clock in the morning and at noon, in sweetened water or in a glass of Curaçao liquor.

(It is advised not to take Kola at night, lest it produce insomnia.—If a more energetic action is desired, the fluid extracts of both drugs may be employed.)

74 to 76.—Cocaine in Facial Neuralgia.

[MALHERBE.]

INJECTIONS.

Cocaine Hydrochlorate 1 part.

Distilled Water..... 20 parts.

or:

Cocaine Hydrochlorate 2 parts.

Boric Acid 1 part.

Distilled Water 40 parts.

or:

Cocaine Hydrochlorate 1 part.

Glycerin..... } of each, 15 parts.
 Distilled Water..... }

Externally!

77.—Scabies in Pregnant Women.—(Treatment.)

[BESNIER.]

OINTMENT.

Beta-naphthol..... 3-6 grammes [$\frac{3}{4}$ - $1\frac{1}{2}$ drs.].

Vaselin 60 " [2 ounces.].

Peppermint Oil a sufficient quantity.

Rub in well every night for five or six days.

(It is also recommended to use a starch-bath every other day.)

78.—Alterative in Old Dermatoses.

[THE SAME.]

MIXTURE.

Sodium Arseniate..... 0.1 gramme [$1\frac{1}{2}$ grains].

Sodium Phosphate..... 20 grammes [5 drams].

Fumitory Syrup..... 200 " [5 fl. oz.].

Guaiac Extract..... 4 " [1 dram].

Tablespoonful every morning, in a cupful of Dulcamara Infusion.

EDITOR'S NOTES.

OUR INSTITUTIONS.

NEW YORK CANCER HOSPITAL.

Dr. CHARLES A. POWERS has been elected Attending Surgeon to the New York Cancer Hospital to fill the vacancy created by the resignation of Dr. FRANK H. HARTLEY. The latter was elected Surgeon to the New York Hospital.

BELLEVUE HOSPITAL

The Second Surgical Division at Bellevue Hospital has been sub-divided and Dr. ROBERT M. TAYLOR has been appointed Attending Surgeon to that part set aside for genito-urinary and venereal cases.

MEDICO-CHIRURGICAL COLLEGE OF PHILADELPHIA.

At a special meeting of the Board of Trustees, Dr. W. FRANK HAEHNLEN, Demonstrator of Obstetrics at the University of Pennsylvania, was elected Professor of Obstetrics; Dr. W. EASTERLY ASHTON, Lecturer on Gynæcology at the Jefferson Medical College, Professor of Gynæcology; Dr. CHAS. M. SELTZER, Professor of Hygiene; Dr. H. H. BOOM, Adjunct Professor of Chemistry; Dr. B. T. SHIMWELL, Adjunct Professor of Operative Surgery.

COLUMBIA COLLEGE, MEDICAL DEPARTMENT.

Dr. CHARLES A. MCBURNEY has resigned from the chair of Surgery at the medical department of Columbia College. This will prove a great loss to the College, for Dr. MCBURNEY had a wonderful faculty in adapting himself to the wants of the students, being a concise and practical teacher of surgery.

Dr. ROBERT F. WEIR, Senior Surgeon to the New York Hospital, has been appointed Professor of Surgery to fill the place made vacant by the resignation of Dr. MCBURNEY.

The annual commencement exercises of Columbia College were held on Wednesday evening, June 8, at Carnegie Hall.

The degree of Doctor in Medicine was conferred upon 116 men by Dr. JAMES W. McLANE, Dean of the Medical Faculty.

The Harsen prizes, for efficiency in the medical department, of \$500, \$300, and \$200 were awarded, respectively, to Dr. CHARLES HOWARD PECK, Dr. KINGSLEY W. MARTIN, and DONALD MCLEAN BARSTOW; the Alumni Association prize, for the best medical essay containing the results of original investigation, to Dr. WILLIAM H. PARKE,

NEW BOOKS.

THE PRACTICE OF MEDICINE.—By M. CHARTERIS, M.D., Professor of Therapeutics and Materia Medica, Glasgow University, etc. Sixth Edition. London: J. & A. Churchill, 1891.

This little work, which has reached its sixth edition, gives a concise statement of the ætiology, pathology, symptoms, and treatment of the diseases commonly found in works devoted to a systematic treatment of practical medicine.

The condensation is admirably done and it contains many practical and valuable points regarding diagnosis and treatment.

In this edition the bacteriological side of ætiology is given full credit to date.

The work also contains six plates illustrating pathological conditions, how heart murmurs are produced, etc.; also wood-cuts and sphygmographic tracings.

The localization of cerebral function and diseases of the nervous system are also briefly treated in a very practical manner.

Skin diseases are classified in tabular form and briefly described separately, so that a general idea can be had of this class of affections almost at a glance.

It also contains a therapeutic index, arranged alphabetically, in which much ready information is given to the student and young practitioner.

The most valuable part of the book is found in the last sections of the appendix which are devoted to a study of prescription writing, posological tables, a classified arrangement of drugs and their incompatibles. In this part alone enough is found to commend the work.

SURGICAL HANDICRAFT. A Manual of Surgical Manipulations, Minor Surgery, etc.—By WALTER PYE, F. R. C. S. First American Edition from the third London Edition. Revised and Edited by T. H. R. Crowle, F. R. C. S.—E. B. Treat, New York. 8vo, 600 pp. Price: cloth, \$3.00; leather, \$4.00; both net.

This compact volume is divided into ten sections and an appendix. It is profusely supplied with marginal references, so that every sub-division of the general subjects treated can at once be found.

The section devoted to hæmorrhage and its treatment is full of sound practical advice. An unusually large amount of space, however, is devoted to the use of styptics, which might lead to the supposition that styptics and caustics were of major importance, while they are generally regarded as last resorts.

The remarks on bandaging, mechanical appliances, the treatment of fractures, dislocations, joint-affections, burns, etc., are given great length, and many

practical hints are given, most of which, however, are equally well stated in general works on surgery.

Anæsthetics are quite fully discussed, the advantages *pro et contra* of chloroform and ether being extensively described, and yet the true gist of the matter is not stated. This may briefly be given as follows:

Chloroform, when it produces death, usually kills early in the anæsthesia and without timely warning; ether rarely ever kills the patient early in the anæsthesia and never without some warning. Prolonged etherization has damaging effects upon the physiological economy, and more especially on the kidney (entirely ignored by author). If the effects of ether upon the kidneys and the deaths resulting from these are carefully considered, the final death rate, attributable to one anæsthetic, is found to be about the same for the other as well. Chloroform causes death immediately and without warning, ether a day or two later with warning. In the former case the surgeon gets the credit, in the latter the death is attributed to natural causes.

This volume will undoubtedly be found a valuable aid to the student in medicine and to the hospital interne during the early years of surgical study. It also contains much that can be consulted with profit by the general practitioner.

INTERNATIONAL MEDICAL ANNUAL. 1892. A Dictionary of New Remedies and New Treatment.—By Thirty-five Specialists, European and American; comprising a résumé of the therapeutic progress of the year. Tenth yearly issue. 644 pp. Illustrated.—E. B. Treat, New York. Price: \$2.75.

This work is, in a condensed form, what it purports to be—a practical index of the past year's medical literature—and it furnishes a large fund of valuable information.

The review of therapeutics for the year of 1891 is by Dr. PERCY WILD, who has done his work well. No striking new discoveries are found.

The statement, that "it is difficult to follow the evolution of the New Analgesics, Antipyretics, Antiseptics, and Hypnotics without studying them in some collective and systematic form," is undoubtedly true.

They are here presented in such a form by arranging them in groups with their graphic formulas as originally given in a paper by Mr. JOHN HODGKIN. By this arrangement the profession is placed in full possession of the chemistry of this class of compounds.

The list of solubilities as given by Mr. HELBING will be found useful.

The general review of the drugs is alphabetically arranged and has been brought well up to date.

Part II is devoted to the general advances in medical and surgical treatment and discusses matters quite fully.

The treatment of vesical affections is quite good, but nothing strikingly new is found. There is, however, a somewhat extended description of the details

and practical value of electrical illumination of the bladder, showing how, in the hands of an expert, this method of examination yields positive information. The numerous colored plates, illustrating the results of such examinations, are very pretty.

Food and dietetics have hardly been written-upon during the past year, judging by the little space devoted to these important topics.

Under the section on the digestive system a somewhat novel method of therapeutics has been given the title of "enteroclysm," and Cantani's "enteroclyser" is fully described; the complete method for using the instrument and a description of the class of cases in which it will be found of value, is also given.

Abdominal surgery, intestinal anastomosis, etc., is, as usual, interestingly reviewed.

In fact, all that possibly can be considered new in Medicine and Surgery has been pretty generally noticed and brought into the most compact and available form for ready reference. This, together with the bibliographical notices, places the reader in full possession of the year's work and the places where the original papers can be found.

Part III is devoted to the recent advances in bacteriology, medical photography, and sanitary science.

This volume, if anything, is more complete and perfect than any that have before been issued.

It is a volume that every physician will find of value almost every day, and one that he cannot well afford to be without if he wishes to keep fully abreast of the times.

BOOKS RECEIVED.

MANUAL OF SKIN DISEASES, with Special Reference to Diagnosis and Treatment. For Students and General Practitioners.—By W. A. HARDAWAY, M.D., Professor of Skin Diseases in the Missouri Medical College, and in the St. Louis Post-Graduate School of Medicine. Philadelphia: Lea Brothers & Co., 1891. Small 8vo; 440 pp. Cloth, \$3.00.

RECENT PAPERS.

THE THERAPEUTIC ASPECT of some Ovarian Disorders. By Edward W. Jenks, M.D., LL.D.—Reprint from *Gynecological Transactions*.

THE INDICATIONS FOR COLOTOMY. By Charles B. Kelsey, M.D.—Reprint from *Therapeutic Gazette*.

ICHTHYOL AS A REMEDY for Facial Erysipelas. By S. J. Radcliffe, M.D.—Reprint from *Therapeutic Gazette*.

COMPRESSION. The cure for Swollen Breast. A new appliance. By Talbot R. Chambers, M.D.—Reprint from *Medical Record*.

COMPRESSION. The cure for Swollen Testicle. A new appliance. By Talbot R. Chambers, M.D.—Reprint from *Medical Record*.

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SURGICAL FEVER.

The term "surgical fever," like the general designation "fever," is commonly used in a vague and often meaningless manner.

Very few perhaps fully appreciate correctly the natural principles that govern the production of this class of fever, or fully comprehend the best methods for its most successful management.

In the February Number of "MERCK'S BULLETIN," when discussing the elements of fever in common, it was found that, by a careful consideration of the ætiological factors entering into the production of fever, together with a close and careful study of the physiological phenomena governing the animal organism, the clinical significance of fever was made plain, and a rational plan of treatment for elevated bodily temperature was established.

The same general laws of heat production, heat storage, and heat excretion hold equally true in every surgical fever, as in the maintenance of the normal bodily heat, and in all the fevers in general, be they named "pathological" or otherwise.

A modification of the heat production, storage, or excretion, either way from the normal standard, no matter by what

cause induced, occasions either a rise or fall of the temperature.

All the ætiological factors that act in producing general pathological fever—excluding specific poisons—may also come into action in the development of the pyrexial state called surgical fever.

Conditions, that are actually dependent upon the surgical injury, may arise, that will tend to increase or decrease the production of heat; or influences dependent upon the same general conditions may be developed, that will increase or decrease the excretion of heat from the body;—either one of which changes will result in an elevation or in a reduction of the body temperature, unless compensated for by a correlative modification of the opposing function.

A simple surgical fever may have for its exciting cause the general mental anxiety and the disturbance in the functional activity of the nervous mechanism, which, in a measure, precede every intended operative procedure. Or, again,—to this mental disturbance may have been added the material nervous irritation and the reflex phenomena which always follow from an injury of any notable gravity, be it intentionally or accidentally produced.

Either one alone, or both of these

conditions combined, disturb the equal and harmonious working of the nervous mechanism and of the organs controlled by it.

This may result simply in a decreased excretion of heat, and still the metabolic processes of the system will in general remain undisturbed; but the temperature will rise above the normal standard.

Even with this increased bodily heat the digestion, absorption, assimilation, and katabolic destruction of the proteid elements will yield the normal nitrogenous excrementitious products.

On the other hand, this nervous disturbance alone may be so great that both digestion and nutritive assimilation are thrown completely out of their natural equilibrium. When this occurs, a marked increase in the excretion of the normal products of tissue-waste is at first observed. This condition is soon followed by an excess in the lower products of proteid metabolism, in place of the highest, which is fully formed urea.

To this state is also soon added the appearance of new and often dangerous katabolic *by-products*.

When these inferior or by-products of the proteid metabolism are eliminated from the system as fast as they are developed, they of themselves cause little if any rise in the normal bodily temperature; but when from any cause they are retained in the animal economy in marked quantity, they cause a rapid rise of temperature.

If the animal economy becomes surcharged with these by-products or toxic elements, the nervous system becomes still more intensely irritated; which phenomenon is then often followed by exhaustion of the nervous centres; whereupon a condition is developed, simulating that of "shock." Under such circum-

stances there is an unduly rapid radiation of heat, and the body temperature rapidly falls—often to a point below the normal level.

Imperfect dieting, together with fermentation of the food-stuffs in the alimentary canal, may, as in all fevers, play an important part as an ætiological factor in producing and maintaining high temperature in surgical conditions.

A third element in the production of surgical fever is the increased oxidation, and therefrom augmented production of heat, consequent upon the local reparative processes which are established of necessity by nature to restore the injured part to a condition approaching the normal state of the parts before the injury.

If the products of this reparative action are, by virtue of the generally high nutritive state of the system, kept nearly up to the normal standard, and at the same time the functional activity of the liver is well performed, and the work of the excretory organs perfectly effected, little or no undue irritation will be developed from this source. In such instances the surgical case may run its whole course without any abnormal rise in the body temperature.

If on the other hand the general nutritive state of the system has been impaired from any cause before the surgical injury was sustained, then the reparative process and its resulting waste products are less perfectly developed. Thus, irregular and imperfect oxidation, and increased heat production at the local point of repair, often become abnormally great; and—instead of the normal products of tissue waste being produced in moderately increased quantities, which can be easily eliminated without apparent irritation of the whole system and rise in the body temperature—the reverse becomes true.

These products of reparative action are not only more abundant, but they are also less perfectly developed, and consequently they are often unduly irritating in their nature, and act upon the system like toxic agents.

This condition has in many cases led to the supposition that an extraneous and septic infection had been developed; whereas the true state was one of inherent or leucomainic self-infection. If, with this condition, the hepatic functional activity is below the normal standard, and the excretory organs imperfectly accomplish their task, *one of two things* must of necessity follow:—Either the bodily temperature will rise high above the normal standard; *or*, the activity of the poisonous elements generated will rise so high above the point of toleration by the system, that their toxic nature will so greatly depress the nervous mechanism as to produce a subnormal temperature.

From these observations it becomes at once apparent that in all surgical conditions, as well as in the purely pathological fevers, there may be a considerable rise in the bodily temperature above the normal point and yet the metabolic processes of the body be almost perfectly performed, and the excrementitious substances found in the urine remain about normal in quality, although they may deviate somewhat from the standard quantity.

In the other class of instances, where the metabolic processes of the system, both local and general, have been more or less universally disturbed, innumerable by-products may be and often are developed and retained within the system. These, according to their quantity and quality, and the perfection and rapidity of their elimination from the circulatory

channels, will then cause, as explained above, either an undue irritation and a rise above the normal standard of bodily heat, or by their depressing influence induce a subnormal temperature.

With either of these two latter conditions, the nitrogenous excrementitious products commonly found in the urine will be changed in their relative proportions, by the lower products of the proteid metabolism taking the place of the more perfectly formed urea. Or, even, new and toxic by-products may replace those common to the normal tissue-metabolism.

If, aside from any nervous and metabolic disturbances, the surgical wound becomes tainted with some extraneous infection,—microbic, ptomainic, or otherwise,—a fourth and *entirely new* ætiological factor is introduced into the production of the surgical fever.

These extrinsic poisons simply intensify the imperfection of the physiological phenomena, and retard or completely arrest all the reparative action which has been attempted on the part of Nature.

The system is often so greatly irritated by the presence of these extrinsic poisons, that all the vital powers of the body are, for the time being, expended by Nature in her attempt to destroy these toxic agents and to remove them from the animal organism.

Under such circumstances, the rise or abnormal fall in the bodily temperature is chiefly and directly traceable to the introduction of those micro-organisms or their associated toxic elements.

During the period that these extraneous substances are the chief exciting cause for the bad condition, the term “septic”—or, “toxic”—fever is justly applicable.

An examination of the urine, when made by a careful and efficient investigator, will show almost exactly the state

of the system. It will clearly demonstrate the fact that in these septic or toxic conditions, the metabolic processes of the body are still more seriously affected than in the simpler forms of surgical fever.

By carefully analyzing the urine in every surgical case under treatment, day by day, the exact state of the system can be ascertained and the cause of the temperature changes accurately defined.

With a full possession of this kind of knowledge regarding the ætiological factors and processes of the origination of surgical fever, the treatment naturally constitutes itself from rational and clearly understood methods.

If the metabolic processes of the body are being perfectly performed and the excretory functions fully accomplished, it is at once clear that whatever elevation of temperature does exist is the result of a nervous irritation by which excretion of heat simply is retarded, and the production and storage—chiefly the latter—considerably augmented.

In such instances the administration of nerve sedatives and mild diaphoretic remedies will re-establish the heat-excretory action of the system and at once disperse the high temperature, without disturbing the nutritive processes of the body.

Many of the so-called and commonly employed antipyretic agents will also lower the temperature in these cases; but their action is had chiefly by their power to disturb the metabolic processes of the body and to cause the development of by-products which depress the cerebro-spinal centres and induce a condition simulating "shock." Consequently, their continued use is apt to cause *more or less damage* to the system; which statement has been fully substantiated by an abundance of reliable clinical proof.

In the second class of cases, in which

the metabolic processes of the body are at fault, the coal-tar class of antipyretics should be viewed with great caution.

The treatment in these cases should be conducted by carefully regulating the diet and the digestion in such a manner that the nutritive powers will be sustained at the highest possible standard, with the smallest outlay of vital energy. The functional activity of the liver should be carefully guarded, that its work may be more perfectly performed, so that assimilation and the resulting products of tissue waste shall more nearly approach the normal standard. Special pains should be taken to improve the nutritive supply distributed to all the glandular organs, and the eliminating action of the excretory glands should be carefully conserved.

When all this has been successfully accomplished, the abnormal nutritive condition of the general system will be caused to approach closely to the normal standard; and the local reparative processes will be more perfectly performed, the general irritation and disturbance in heat excretion subdued, and the abnormally high temperature duly brought to the normal point.

The use of drugs bearing the name of "antipyretics"—*regardless* of their true physiological action upon the system—has unquestionably caused many a failure where successful recovery might have resulted.

If the wound has become infected by any form of extrinsic or toxic agent, the infection must first be removed from the wound. After having made the wound thoroughly aseptic, the above-outlined plan of treatment will speedily restore the physiological functions of the system to a normal standard, and establish a healthy reparative process; and a speedy cure of the surgical condition will necessarily follow.

CARBOLIC-ACID THERAPY.

For a long time, clinical evidence has demonstrated that the administration of one or two grains of pure carbolic acid per os, t. i. d., will prevent the formation of uric-acid calculi in the urinary passages. It also arrests the recurring attacks of renal colic.

That this phenomenon is no mere coincidence has been abundantly established by the uniformity and certainty with which such results have been attained in a very large number of cases.

How this empirical result could be explained upon a logical and scientific basis, has for many years been an unsettled problem.

The recent studies, however, which have appeared in MERCK'S BULLETIN, in relation to the chemical mutations which regularly take place in the alimentary canal and urinary channels, have thrown much new light upon the chemico-physiological phenomena of the human system.

As a result hereof, it has become possible to formulate a theory which will fully and clearly explain the action of the carbolic acid, so long recognized as a valuable therapeutic factor in the class of cases already instanced.

Carbolic acid, like alcohol and many other compounds, is known to possess the property of coagulating albumin; consequently it is not good chemistry to introduce carbolic acid directly into the blood. In fact, it must be impossible even to take the phenol in its own form through the wall of the alimentary canal into the circulation.

Still, there is considerable tangible evidence that carbolic acid is often found in the urine when this drug has been administered per os or used as a surgical dressing.

At first these opposing conditions seem to be almost irreconcilable; but, by adhering strictly to fixed chemical laws, these apparent contradictions are easily made to harmonize, without the introduction of any unknown biological factors.

Carbolic acid, while classed as an alcohol, has many of the properties and reactions common to acids.

Phenol, like many acid substances, contains replaceable hydrogen atoms; which circumstance enables it to unite with basic substances and form carbolates of the same.

Following the same laws that have been laid down for the action of the mineral acids in the alimentary canal,—the action of the carbolic acid can similarly be elucidated.

The strikingly brilliant results attained in clinical experience by the internal administration of this acid in uric-acid conditions no longer begs for an explanation.

The carbolic acid, when it reaches the stomach and intestinal canal, reacts upon the sodium-, potassium-, and other saline compounds contained in the food-stuffs, in a manner similar to the action of the mineral acids, and forms carbolates of sodium, potassium, etc. The most likely combination is that with the sodium compounds, because these are most abundant in the food-stuffs and in the digestive tract.

The phenol reacts upon the normal sodium phosphate, and forms a carbolate of soda and the di-sodic phosphate, according to the following equation:—
$$\text{C}_6\text{H}_6\text{O} + \text{Na}_3(\text{PO}_4) = \text{C}_6\text{H}_5\text{NaO} + \text{Na}_2\text{H}(\text{PO}_4)$$
 Similar combinations can be effected with the potassium-, calcium-, and other compounds found in the alimentary canal.

The carbolates thus formed can be

absorbed and taken into the blood stream without precipitating the proteid elements. While the phenol salt is contained in an alkaline menstruum like the blood and the fluids of the tissues, it has no occasion to be decomposed and have the carbolic acid re-formed.

Whether the various carbolic salts have any irritating action upon the system, more than is common to inorganic compounds in general, while they are making their transit through the body to be eliminated by the excretory organs, is a question open for discussion.

Having already affirmed the law, however, that all the inorganic compounds act in the organism alone by virtue of their mechanical presence, it seems reasonable to assume the same for this "pseudo-organic" class of compounds to which carbolic acid belongs,—to wit: that the carbolic salts are not decomposed in the blood, but that they are powerful mechanical irritants to the system, equal to that of the most poisonous of the strictly inorganic (*) substances.

While these phenol compounds are not in the strict sense "mineral" substances pure and simple, so far as their action, both clinical and experimental, is able to prove, they follow the same laws of action that govern the purely mineral compounds, and not those which govern organic elements.

It is a well-known fact that certain saline compounds, when added to freshly drawn blood, will prevent its coagulation. It is also equally well established, that, when carbolic acid has been taken into the

animal organism in considerable quantities, the coagulating power of the blood is retarded. Presumably this is due to the saline form of the carbolate compounds formed from the acid in the animal economy; for, on the other hand, the uncombined carbolic acid, when brought directly in contact with blood, coagulates it.

Taking these observations together, it appears quite logical to assert that the mechanical presence of carbolic salts in the circulating blood can, like that of other known saline compounds, so affect the proteid bodies contained in the blood, that the coagulating power of the latter is decreased or altogether arrested.

Further, it might be supposed that the presence of the carbolates so changes the metabolism in general, in connection with these abnormal conditions named, that the final product of proteid oxidation tends to become *urea*, instead of stopping at the lower product, *uric acid*.

This, however, cannot be the actual method by which the formation of uric-acid calculi is so suddenly arrested and the superacidity of the urine changed to a less intensely acid reaction. For, the total quantity of uric acid formed and to be eliminated from the system daily can only be reduced by cutting down the quantity of food-stuffs ingested; or by increasing the intake, and the distribution through the system, of oxygen,—thus increasing the rapidity and thoroughness of the oxidation processes.

There is no evidence whatever, direct or indirect, that carbolic acid, when introduced into the alimentary tract, alters the oxygenating capacity of the system or regulates the food supply.

Therefore, here as in all other instances, the intaking of the food-stuffs must always be kept within the oxygenating capacity of the system, if true repair is to

(*) We here allude to the different principles of classification adopted by chemists, as to what should be called "organic substances." The term is considered here in its ancient acceptance, of compounds that are normally found only in living organized structures—animal or vegetable. According to this definition, phenol is "inorganic," although classed as "organic" by those who take this term to signify "containing carbon."

be fully and permanently established and the uric-acid condition perfectly eradicated. And the true method of action of carbolic acid in "uric-acid condition" must be sought in another direction.

While the alkali carbolates are fairly stable in alkaline menstrua, they are very easily decomposed, and the carbolic acid set free, in a neutral or acid medium.

The carbolates, after having circulated through the system, pass out of the blood by a process of filtration through the walls of the capillary blood vessels which constitute the Malpighian tufts in the kidneys, in a manner similar to the escape of all the other mineral salts from the blood stream.

From this point, the phenol salts pass down within the lumen of the uriniferous tubules with water and other salts, until they reach the location at which the uric acid is constantly being formed and given off by the excretory epithelium into the cavity of the tubules.

At this point the carbolates come in contact with the free uric acid, and the two react upon each other. Decomposition of the salt ensues, which—in the case of sodium carbolate—results in the formation of a somewhat soluble urate of soda and the liberation of carbolic acid, as expressed in the following equation:—

$$\text{C}_6\text{H}_5\text{NaO} + \text{C}_5\text{H}_4\text{N}_4\text{O}_3 = \text{C}_5\text{H}_3\text{NaN}_4\text{O}_3 + \text{C}_6\text{H}_6\text{O}.$$

This formation of the urate of soda prevents the transmutation of the redundant uric acid into calculi,—thus dispersing the painful symptoms almost as "by magic."

This action of the carbolic acid is made possible by the fact that the food-stuffs contain a surplus of soda compounds which ordinarily remain unabsorbed, and consequently pass out of the alimentary canal with the fæces.

In the natural working of the digestive processes, the normal sodium phosphate is acted-upon by the gastric hydrochloric acid, with the formation of di-sodium-hydrogen phosphate and sodium chloride. The latter salt is *not* decomposed in the urinary channels by the uric acid, but passes off with the urine unchanged.

When carbolic acid is administered, on the other hand, some of the surplus of soda in the food-stuffs in the alimentary canal is acted-upon by the phenol, with the formation of di-sodic phosphate, and of a carbolate of soda instead of sodium chloride.

The carbolates are easily absorbed and pass to the kidneys, where they are readily decomposed by the uric acid,—thus using-up the redundancy of the latter, and thereby preventing its deposition in the form of calculi, as above shown.

When the quantity of carbolic acid taken is small and the elimination somewhat slowly effected, the odor of carbolic acid is not perceptible in the urine; but just as soon as a considerable quantity of the acid is taken, or it is rapidly eliminated, the odor of carbolic acid becomes apparent in the renal secretion. Furthermore, its presence in the urine can be chemically detected.

Thus, the laws of chemistry and physiology have furnished quite a complete explanation for the good clinical results which have so frequently been obtained by the internal administration of the carbolic acid in uric-acid conditions.

It also helps to clear up many of the hitherto unexplained phenomena associated with carbolic-acid poisoning when this drug has been used as a surgical dressing.

Ordinarily, in a wound, the carbolic acid coagulates the proteid substances that it comes-in-contact-with, and thus

prevents its own further entrance into the general circulation. But when it is used in large quantities or remains in quantity for some time in the dependent cavity of a wound, the carbolic acid may unite with the soda or other mineral compounds contained in the fluid exudations of the wound, and thus render possible its access to the circulation.

In rare instances the ordinary fibroplastic barrier between the wound and the underlying sound tissue is imperfectly formed. When this is the case, the carbolic compounds are rapidly drawn into

the circulatory channels, and pass on to the kidneys; to be eliminated in the urine, as before explained.

If carbolates are absorbed and pass to the kidneys more rapidly than they can be eliminated with safety by these excretory organs, these salts by virtue of their irritating properties and their ability thereby to disturb the proteid transmutation within the body, cause a disintegration of the red corpuscles of the blood. The pigment contained in the hæmoglobin is set free, and an acute and often fatal hæmoglobinuria is produced.

MEDICAL REPORTS

TO "MERCK'S BULLETIN."

MODE OF ACTION OF CALOMEL INJECTIONS.

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[Dedicated to Prof. ANGELO SCARENZIO.]

I.

HISTORICAL STUDY.

THE INITIAL METHOD.

Injections of Calomel were introduced into therapeutics by SCARENZIO in 1864, nearly at the same time that some other physicians (HEBER, HUNTER) (*) initiated a series of experiments on hypodermic injections of sublimate, with a view to the more efficient treatment of constitutional syphilis.

SCARENZIO was unaware of these other experiments; but, starting from the principle generally accepted that insoluble mercurial salts, to become absorbed into the organism, need to be transformed into corrosive sublimate by the alkaline chlorides of the blood, he thought of injecting atomized calomel, suspended in a neutral liquid, into the connective subcutaneous tissue; trusting to the juices of the

system for the gradual transformation of the injected preparation into the bi-chloride of mercury. The dose injected by SCARENZIO was from 0.2–0.3 gramme [3–4½ grains], in 1½ grammes [18 min.] of glycerin, to be repeated or reduced according to circumstances; for he estimated that two such injections, corresponding to 40 centigrammes of sublimate, would, as a rule, be sufficient to cure a case of syphilis. The instrument used by him was the common syringe of PRAVAZ, mounted in bone and steel; the region chosen for the first puncture was the median internal part of the leg; then the median posterior part of the arms, in order that the patients should not be obliged to keep their bed. In his first account (*) SCARENZIO reports his observations of 8 clinical cases, all treated with hypodermic injections of calomel, aggregating 16 in number (2 for each patient), constantly producing at the place of the puncture an abscess which opened spontaneously between the fifth and the thirty-sixth day. The signs observed were: total absence of mercury in the pus of the abscess, chemically examined;

(*) TREISSL: "Lehrbuch der constitutionellen Syphilis," p. 381. Erlangen, 1864.

(*) SCARENZIO: Primi tentativi di cura della Sifilide costituzionale, mediante la iniezione sottocutanea di un preparato mercuriale. *Annali Universali di Medicina*. V. 189. Milano, 1864.

indubitable signs of absorption of the mercurial preparation, deduced partly from the unquestionable amelioration of the patients, partly from occasional supervening of hydrargyriasis. The author attributed the formation of the abscess to the transformation of the calomel into sublimate.

SUPPORTERS AND OPPONENTS.

In the meantime the general request addressed by SCARENZIO to his colleagues that they should experiment with and follow this mode of treatment was readily accepted by others. AMBROSOLI (*), in fact, among the first, applied in the years 1864-65 to 16 women in the Celtic hospital of Milan the hypodermic treatment of injections of calomel, the soluble mercury of HAHNEMANN and the black oxide of MOSCATI, in doses of 0.3 gramme [$4\frac{1}{2}$ grains] suspended in one and a half grammes of vehicle. He practiced 24 injections, and observed always the appearance of the abscess, which was opened spontaneously or by surgical means, and the absence of mercury in the pus evacuated. About the same time LASÈGNE(†) censured severely the new method, declaring it, without giving any reasons, to be of very problematic efficiency and utility, and PROFETA(‡) declared that on account of the abscesses which constantly occurred and sometimes were very extensive and of long duration, he would not think of resorting to such a method, except in a case in which every other expedient had proved ineffectual.

In the following year MONTEFORTE (§), after citing a case of recovery from pustulous syphiloderm by means of a hypodermic injection of 0.4 gramme [6 grains] of calomel, declared himself an adherent to this method of treatment, partly because it offers, in preference to others,

the advantage of knowing with certainty that a mercurial cure has been practiced, partly on account of its low cost; and PORTA (*), in a report to the Ministry of Public Instruction, classed SCARENZIO's method among the recent progresses of Italian surgery, whereas CASATI (†) enlisted himself among its adversaries, citing a case in which about 0.4 gramme [6 grains] injected in the panniculus adiposus of an arm, besides the phlegmonous local abscess, had produced so violent an ulcerous stomatitis that the patient for some days was in danger of losing his life. SORESINA (§) observed to CASATI that in view of the great activity of the calomel, hypodermically applied, there arose the necessity of dosage according to the circumstances; and BOUCHARDAT (§) recorded, without any comment, the constant appearance of abscesses at the place of injection.

SCARENZIO'S SECOND REPORT.

The question of Calomel Injections had reached this point when SCARENZIO, in collaboration with RICORDI, in an elaborate memoir, read at the Medical Congress in Brussels in 1869 (||), and awarded the gold medal, presented a report of over 100 clinical cases, so rich in observations, microscopical and clinical researches, that it can even to-day be justly considered as one of the most remarkable and complete works published in Italy during the last thirty years. In 86 (¶) patients, the above-

(*) PORTA; Dei recenti progressi della chirurgia Italiana. Milano, 1867.

(†) IPPOCRATICO. P. 476. 1867.

(‡) *Giornal Ital. delle malat. vener. e della pelle*, Fasc. 2^a. Milano, 1868.

(§) BOUCHARDAT: *Annuaire de Thérapeutique*. 26e et 27e année. Paris, 1868.

(||) SCARENZIO e RICORDI: La méthode hypodermique dans la cure de la syphilis. Bruxelles, 1869.

(¶) I do not of course consider in any way experiments instituted with hypodermic injections of soluble salts, because they are foreign to my argument. For the same reason I do not deal with the results of injections performed with other insoluble preparations: neither have I considered, nor shall I consider, the experiments instituted by AMBROSOLI with MOSCATI's black oxide; by LELOIR and TAVARNIER with yellow oxide and gray oil; and by LEITON and FÜRBRINGER with metallic mercury. The scope I propose to myself is to elucidate the mechanical action of calomel administered by injections. On the other hand, it is evident that all the other insoluble preparations differ little or not at all from calomel in their general or local effect, so that the results obtained with proto-chloride

(*) AMBROSOLI: Sul metodo di curare la Sifilide costituzionale con le iniezioni sottocutanee di un preparato di Mercurio. *Giornale Ital. delle malat. venere e della pelle*. Fasc. 2^a. Milano, 1866.

(†) LASÈGNE: De la médication hypodermique. *Archiv. générales de Médecine*. Janvier, 1866.

(‡) PROFETA: Sulla Sifilide costituzionale e sulla sua cura. *Giorn. Ital. delle malat. ven. e della pelle*. Milano, 1866.

(§) MONTEFORTE: Risultati clinici raccolti nel Sifilicomicio di Palermo negli anni 1856-66. Palermo, 1867.

named authors practiced an aggregate of 159 hypodermic injections of calomel by doses varying from 0.05–0.3 gramme [$\frac{3}{4}$ – $4\frac{1}{2}$ grains] each, and got an abscess 157 times in connection with the puncture. In a girl of three years, who died from the gravity of the syphilitic lesions, three days after the injection of 0.15 gramme [$2\frac{1}{4}$ grains], there was at the punctured place a small tumor, the skin remaining normal, without fluctuation; which, upon incision, showed that the liquid part of the mixture injected was absorbed, while the quantity of calomel appeared to be undiminished. The small cavity, scarcely of the size of a rice-grain, had injected and red walls; the surrounding tissues were normal. In another analogous case, death ensued 14 days after the injection of 0.2 gramme [3 grains] practiced in the left arm. At the autopsy the abscess, which had run the course of a cold abscess, contained 5 drops of pus; the walls were covered with a whitish film which by chemical analysis was found to contain calomel; under the membrane a fresh, distinct injection with thickening of the surrounding connective tissue; in the centre of the abscess cavity a fragment of mortified connective tissue, containing traces of the mercurial preparation.

I omit altogether the description of the operative technique of the above-named authors, because it differs but slightly or not at all from that used for the injections of other remedial substances, and will proceed instead to describe the developments, following one another upon the injection, as they are set forth by the authors themselves.

ANALYSIS OF THE TOPICAL LESIONS.

After the introduction of the calomel a small fluctuating tumor was observed in connection with the point where the liquid had been injected; in a short time the aqueous part of it was absorbed. The local reaction manifested itself 8 to 10 days after the operation, attended with pain on pressure, tumescence, slight redness, limited to the point of the injection; and these phenomena either increased in the days follow-

ing or remained stationary; but after one or two days at most the period of decrease set in, and the reaction became still more circumscribed. As early as the thirteenth day a slight fluctuation could be observed, and under the following four to six days the abscess slowly formed itself; the overlying skin grew reddish and continually thinner, and the pus finally made its way to the exterior.

SCARENZIO had first observed—and after him RICORDI, AMBROSOLI, and MONTEFORTE—that the pus evacuated from the abscess contained no chemical traces of mercury, and the first two of these authors arrived at the same conclusion from experiments made upon dogs; at a later time, however, by means of the electrolytic method of Smithson's pile, traces of mercury were discovered in the centre of the necrosed connective tissue. Soon afterwards the pus discharged at the first evacuation from the abscess exhibited, on microscopic examination, traces of calomel in some cases, and in others not; but, even in these latter, the electrolytic examination revealed the presence of mercurial salt. This, together with the presence of mercury in the saliva of individuals subjected to the treatment in question, proved indisputably the transformation of the calomel into a soluble and absorbable preparation. The authors concluded that calomel is preferable to soluble salts, because with one, two, or, at most, three injections of 0.1–0.4 gramme [$1\frac{1}{2}$ –6 grains], it is possible to introduce into the diseased organism a sufficient quantity of mercury to cause its gradual transformation into a soluble form to take the place of any ulterior treatment; and this without provoking any manifestations in the patients, of intolerance, salivation, etc.; except the abscess, about which they felt no concern, as being a matter of little consequence.

THE ABSCESS QUESTION TAKEN UP.

From that time forward the chief object of the adherents of this method was to endeavor to avoid the abscess. To attain this result, Dr. MORA(*) made use of massage immediately

of mercury, strictly speaking, may, perhaps, likewise be referred to other insoluble salts.

(*) *Giorn. Ital. delle malat. vener. e della pelle.* Milano, 1870 e 1871.

after the injection, in order to distribute the remedy over a larger surface and thus render it less irritating; nevertheless his statistic report—considered the best of all at that period—exhibited 11 abscesses among 33 injections.

RAGAZZONI and APPIANI, in applying a similar treatment to 55 individuals, counted as many abscesses as they had practiced injections. Similar results were observed by FLARER, DE MAGRI, PREVITALI, and even by PROFETA, (*) who declared that every injection of calomel was attended with an abscess, and every injection of sublimate with an eschar. PROFETA published, besides, a report of all the preceding cases, showing that of 332 injections, practiced by various physicians, 295 were attended with abscesses, without counting those forgotten; and of the 37 negative cases the larger number were due to the successful Dr. MORA.

SMIRHOFF'S MODIFICATION.

The chief obstacle, therefore, to the adoption of such treatment consisted in the appearance of the abscess, on account of which this method ran the risk of falling into disuse, when a Finnish physician, SMIRHOFF, published in the Swedish language an elaborate account (†), which on its first appearance did not attract much attention (on the part of foreign physicians), as being written in a language but little studied and known abroad. In order to avoid the abscess, SMIRHOFF proposed choosing one of the buttocks as the seat for the injection, and to practice the puncture three centimetres backward of the great trochanter by pushing the canula vertically about three centimetres, sufficiently below the aponeurosis so as to deposit the calomel in the fascia of the gluteal muscles.

He stated he had performed at his clinic about 2000 injections by this method, without observing once in the last 1000 operations an abscess which opened spontaneously or required incision. According to SMIRHOFF, injections practiced in conformity with all the rules of

art, occasioned only an insignificant local reaction; and when—from deficiency in technique—any reaction occurred, he distinguished three forms:—(1) the simple inflammation arising with hypertrophy or hyperplasia of the tissue, or (2) with infiltration (the first entailed the formation of pus, which was spontaneously absorbed; the second produced no pain, nor supuration, and it was gradually absorbed, sometimes even at the end of two months); (3) a form that was characterized by turgescence consequent on the injection, and disappeared in a short time. The author attributed the good results to the following facts:

1.—That the calomel was surrounded by many muscular fibres, and consequently protected from pressure in whatever position occupied by the body.

2.—That the skin in this region was of a great thickness, and therefore very rarely ulcerated, even when the focus was inflamed and the skin red.

The Swedish language being but little known, especially in Italy and France, SMIRHOFF'S work at first gave rise to no precise indications; and, in fact, among Italian physicians, GAMBERINI (*), in adverting to it, paid no attention to the special indication of practicing the injections deeply into the buttocks, rather than into the subcutaneous connective tissue; and JULLIEN (†), who, with praiseworthy promptness, called attention to the work in France, seems to have thought that the modification made by SMIRHOFF in the process of SCARENZIO consisted solely in practicing the injection into the subcutaneous connective tissue of the buttocks, instead of into that of the arms. Even SCARENZIO (‡), who was directly interested in the question, did not at first follow the precise indications of SMIRHOFF; for, in repeating his experiments at his clinic, instead of pushing the

(*) *Giornal Ital. delle malat. vener. e della pelle*: Marzo e Aprile, 1883.

(†) JULLIEN: Quelques mots sur les injections hypodermiques, etc. *Annales de Dermat. et Syph.*, 2e Série, Paris, 1883.

(‡) SCARENZIO: Resoconto sommario degli ammalati degenti nella clinica dermosifilopatica di Pavia durante il biennio 1882-83. Pavia, 1884.

(*) *Osservatore medico di Palermo*. Fasc. 19 e 20. 1872.

(†) SMIRHOFF: Om Behandling af Syphilis medelst subkutana Kalomelinjektioner. Helsingfors, 1883.

canula beyond the aponeurosis about 3 centimeters [about $1\frac{1}{8}$ in.] backwards of the great trochanter, he arrested it on the adipose cellular tissue, at the region situated between the antero-superior spine of the ilium and the great trochanter, always producing an abscess; but later-on, by modifying the operation and pushing the needle beyond the aponeurosis, the abscess often failed to appear.

SMIRHOFF'S FOLLOWERS.

LUNDBERG (*) practiced deep injections of calomel in 100 patients, in doses of 10 centigrammes for each of the nates, always choosing the little pit found nearly behind the great trochanter; and he observed that eight to ten days after the operation, the patients often manifested pain and occasionally, also, difficulty in moving. Sometimes, even a long time after the injection, pus gathered at the place of the puncture, so that a fluctuation could be distinctly observed; but the pus was spontaneously absorbed, except in one case where the author had to resort to the bistoury. He had in all 10 abscesses among an aggregate of 100 injections, although he frequently, even in cases of non-appearance of abscess, observed manifestations of pain and pretty severe thickening and hardening of tissues.

Next appeared WATRASZEWSKI (†), of Warsaw, with results equally as satisfactory as those obtained by SMIRHOFF and LUNDBERG. He remarked only that the penetration of calomel-particles into a vein might prove fatal to the patient. LUTON (‡) sought to explain the cause whereby the abscess, unavoidable in subcutaneous injections of calomel, so often failed to appear in intramuscular applications; and starting from the principle that the cellular subcutaneous tissue has an alkaline reaction, whereas the muscular reaction is decidedly acid, he arrived at the conclusion: that mercurial salts—which are with difficulty absorbed by the ordinary hypodermic introduction, and

besides give rise to local inflammations—when found in an acid medium like that of the muscular tissue, are completely absorbed without producing local accidents.

In 1885, Dr. SOFFIANTINI (*) published a statistic résumé for the years 1883–84–85, comprising 37 observations, of which the first 18 relate to patients treated with injections into the subcutaneous connective tissue of the buttocks, with the results of 11 more or less slight abscesses among a number of 24 injections; in the second series, of 19 observations, 29 injections were produced according to the exact method of SMIRHOFF without an abscess. In one case there remained deeply settled a small nodule of hyperplastic tissue, of the size of a hazel-nut, hard and painless, which was gradually reabsorbed. The author concludes that the practice of SMIRHOFF—eliminating the disadvantage of the abscess and the consequent dispersion of the calomel by the efflux of the pus—has established the fact that a single injection of 10 centigrammes of the remedy, as a rule, is sufficient for the cure.

NEISSER (†) presented at the Congress of Strassburg a statistic résumé of 717 injections, among which he had to record only 31 abscesses, all depending on defective operative treatment; and PETERSON, at the second Medical Congress in Moscow, affirmed that injections of calomel not only are equal in efficacy to *inunctions*, but more prompt in their action. LESSER (‡) was of the same opinion, but he maintained that the aforesaid injections, on the other hand, constituted a method considerably more painful, and that they constantly—even when practiced with all possible precautions—gave rise to serous infiltrations, which, however, with proper care only rarely induced suppuration. In order to avoid severe inflam-

(*) SOFFIANTINI: La cura della sifilide costituzionale secondo il processo di SMIRHOFF. *Giornal Ital. delle malat. vener. e della pelle*. Fascicolo 19. Milano, 1885.

(†) NEISSER: Conferenza al Congresso di Strassbourg. Settembre, 1885.

(‡) LESSER: Manuale delle malattie cutanee e venereo-sifilitiche. (Trad. Ital. sull'ultima Tedesca di G. VON TOMMER.) Pag. 207, Par. 2a.

(*) LUNDBERG: *Tidskrift för Militärhelsovård*. 2dra. Uppl. 1884.

(†) *Vierteljahrsschrift für Derm. und Syph.* Heft 3, 1884.

(‡) *Arch. génér. de Méd.* Décembre, 1884.

mation and formation of abscesses, the author thought it advisable that the patients should remain at rest for a few days.

FURTHER IMPROVEMENTS SUGGESTED.

HOPP and CHOTZEN (*) substituted a solution of common salt at $2\frac{1}{2}$ per cent for the glycerin at first used by almost all syphilographers, and F. BAKER (†) employed vaselin oil as an excipient; but instead of deeply injecting the mixture into the nates, he pushed the needle perpendicularly as far as under the subcutaneous cellular tissue; and his statistical data show 19 abscesses among 107 injections. A precaution not to be neglected, according to the author, would be to introduce at first the isolated needle into the seat of the puncture, so as to ascertain, from the absence of any blood-drops, that the lumen of some blood-vessel has not been pierced, thus avoiding the risk of provoking accidents of embolism. For the rest he declared himself a warm supporter of such method of medication, and held that by using greater care, partly in the preparation of the mixture, and partly in the operative treatment, it would be possible to avoid abscesses altogether.

CRITICISMS AND CAUTIONS.

BESNIER (‡) maintained that hypodermic injections of calomel occasioned local pains, nodules, and small hæmatic abscesses, etc., but never grave accidents requiring surgical intervention; and as to the slight concomitant accidents, they would for the most part be decreased by a more perfect operative treatment and the experience of the practitioner. MARTINEAU (§) held that injections of albuminate of mercury, with addition of ammonia chloride, were preferable to injections of insoluble salts, because the former have the advantage of not producing local accidents; and BAKER (||) at

the same time communicated to the Medical Association an important observation on the same subject. He referred to a woman, admitted to the hospital of Lourcine for syphilitic lesions of the pharyngeal cavity, who had been subjected to a mixed specific treatment with subcutaneous injections of yellow oxide of mercury and calomel, and with doses of 4 grammes [1 dram] of iodide each day per os. She died about six weeks from the commencement of the treatment, with grave pulmonary phenomena. At the autopsy the author found, at the site of injection, four nodules which, on microscopical examination, after hardening and staining, presented the following appearance: a soft central zone consisting of granular cellular elements, and analogous to the central zone of tubercles and softened gummata; a median zone, formed of embryonic cells, with a fibrillary intercellular substance, identical, likewise, with the embryonic zone of gummata and tubercles; and a peripheral zone in which could be observed inflammatory lesions more or less severe according to locality; the whole presenting an appearance identical with that of the pseudo-tuberculosis described by MARTIN. Dr. BAKER observed, besides, blackish granulations, consisting probably of mercury; and he concluded that although in this case the transformation of the originally soluble mercurial powder had been produced by an intense chemical reaction, which caused a partial necrosis of the connective tissue, yet he did not believe in the constancy of similar lesions at the place of puncture, since clinical experience demonstrated the contrary.

MURIAC (*) recognized that injections of calomel act sometimes with great rapidity on syphilitic manifestations; but he found that they did not guarantee against relapses, and had the disadvantage of causing local complications which, though not very serious, were still pretty considerable. Of the same opinion were HALLOPEAU (†) and VIDAL (‡). The latter

(*) HOPP and CHOTZEN: Ueber die subkutane Anwendung, u. s. w. *Vierteljahrsschrift für Dermat. und Syphil.* 1886.

(†) F. BAKER: Traitement de la Syphil., etc. *Bulletins de la Société médicale des Hôpitaux.* 11 Mars, 1887.

(‡) BESNIER: Sur les procédés de mercurialisation, etc. 25 Mars 1887. Loc. cit.

(§) MARTINEAU: De la thérapeutique générale de la Syphilis, etc. 22 Avril 1887. Loc. cit.

(||) F. BAKER: Des accidents locaux déterminés par les injections, etc. Loc. cit.

(*) MURIAC: Thérap. générale de la, etc. 27 Mai 1887. Loc. cit.

(†) *Bulletins de la Société médicale des Hôpitaux.* 10 Juin 1887.

(‡) Loc. cit. 24 Juin 1887.

asked himself *what would become of the insoluble mercury in patients that were simultaneously subjected to iodide treatment.*

THE METHOD FINALLY ACKNOWLEDGED.

NICOLICK (*), among 368 intramuscular injections, had only 21 abscesses of the puncture-tract, but never any at the focus, and he declared himself therefore a decided adherent of this method. REINHARD (†) and REUDEL (‡) were of the same opinion, and NEISSER (§) considered such injections even more serviceable than inunctions, because they are capable of removing manifestations refractory to all other methods of syphilitic treatment. SOFFIANTINI (||), among 21 injections, practiced at a private clinic, either into arms or into the buttocks, never observed abscesses, and the results of his treatment were always brilliant. LELOIR and TAVERNIER (¶) performed 1573 injections, of which 875 with calomel, 642 with yellow mercuric oxide and 56 with gray oil. They always observed the most scrupulous antisepsis, and had not to complain of any abscess; but among 875 injections with calomel, they counted 260 cases of small dermo-epidermic tumors without suppuration; 62 diffused indurations of the cutis; 70 aggregations of sanguineous serosity; 5 cases of cutaneous mercurialism in the surrounding parts of the puncture: an aggregate of 397 local complications. They obtained nearly identical results by injections with yellow mercuric oxide and gray oil. SCARENZIO (**), in a communication to the Medical Congress of Pavia, asserted that the absence of abscesses testified more and more to the superiority of the method, and that the dermo-epidermic tumors, for the rest, far from numerous, may be avoided through a rigorous antisepsis.

(*) NICOLICK: Resoconto sanitario del l'ospedale civico di Trieste. Anno 1887.

(†) *Deutsche medic. Wochens.* 41, 1887.

(‡) *Vierteljahrss. für Dermat. und Syphil.* 1888.

(§) *Breslauer ärztl. Zeitschr.* 1888.

(||) *Giornal Ital. delle malat. vener. e della pelle.* Fasc. 39. Milano, 1888.

(¶) LELOIR et TAVERNIER: Du traitement de la syphilis par les injections sous-cutanées, etc. *Journal des Maladies cutanées et syphilitiques.* Août-Sept. 1889.

(**) Le iniezione di calomelano al recente congresso di Dermosifilografia a Parigi. Settembre, 1889.

JULLIEN (*), finally, returning to the argument, declared himself an adherent of the SCARENZIO-SMIRHOFF treatment, in an exposé in which he also reported his observations on two patients who, after treatment with a single injection of 0.1 gramme [$1\frac{1}{2}$ grains] of calomel, at the first appearance of initial syphiloma, presented no traces of constitutional syphilis for several years afterwards. The author had no reason to complain of accidents localized at the seat of the puncture, and from the results obtained he concluded that in cases where it is not possible to remove initial syphilosclerosis by excision, the sole remedy capable of arresting the course of syphilis was the calomel administered by injections.

II.

EXPERIMENTAL STUDY.

CONCLUSIONS FROM THE ABOVE REPORTS.

Evidently, therefore—even according to the judgment pronounced by the declared opponents of the SCARENZIO method—calomel injections, by their general action in the treatment of constitutional syphilis, are of the greatest efficacy. Was the illustrious syphilographer of Pavia possibly mistaken when he attributed this great efficacy to the nascent mercuric bichloride which is generated by the gradual transformation of the calomel? We shall briefly touch upon this point in the sequel. But, be that as it may, there can be no doubt that few, if any, of the many existing specific methods of medication have to an equal extent with this, and at all times, elicited such general recognition of their inherent value. The most serious obstacle to the general adoption of the method in question consisted in the accidents resulting from the injections, and localized at the seat of the puncture: accidents which, according to my views, based on observations of clinical and experimental data, are not so different as they might be thought at first; but nearly all of them can be separated into two classes, viz.: abscesses, and dermo-epidermic or deep tumors. To me it seems clear *a priori*

(*) JULLIEN: De la possibilité d'enrayer la syphilis après l'apparition du chancre induré. Paris, 1891.

that the three species of local alterations observed by SMIRHOFF do not fall beyond these two categories; and the diffused hydrargyrosis of the cutis, as well as the sanguineous aggregations cited by LELOIR and TAVERNIER, on the other hand, are not constant phenomena, or, at least, not so typical and frequent as to constitute one of the most serious disadvantages of the operation in question. For the same reason no one would venture to place the more or less severe, but nearly constant local pain, which results from sublimate injections, in comparison with the more or less circumscribed, but at the same time, very infrequent, indurations of the subcutaneous connective tissue. Bearing in mind, further, that until the time when the process of SCARENZIO was modified by SMIRHOFF, abscesses were as numerous as the injections practiced, and that these abscesses disappeared nearly entirely thereafter, to give rise, quite often, in their place, to the formation of nodules,—the classification presented above will not appear too narrow. But there is still another consideration. In what consisted the modification brought about by SMIRHOFF in the primitive method of SCARENZIO? All he did was simply to transfer the medicament from the subcutaneous connective tissue to the intracellular muscular tissue or to the parenchyma itself of the muscles, that is, to substitute a deep injection for a superficial one. If we now consider that in consequence of this change of the seat of the injection, the local manifestations lost their invariable character of abscess, as described up to the time of SMIRHOFF, and assumed an aspect the more indefinite that they were less accessible to observation; and when it is added to all this, that the abscess described by SCARENZIO, RICORDI and others did not correspond in the majority of cases to the acute typical abscess which we are accustomed to observe, but—according to the words of the authors themselves—*had a progress very similar to that of a cold abscess*, we are forced to suspect that the modification of the Finnish physician, instead of entirely eliminating this disadvantage, merely confined the evolution of

the process by making it so deep-seated as not only to hinder it from opening a way for itself to the surface, but even to render it inaccessible to our observation. All this would, of course, not have occurred if the abscess, instead of originating for the most part through some cause inherent in the nature of the remedy itself, had always depended upon the penetration of pyogenic germs fostered by neglect of a scrupulous antiseptis.

OBJECTS OF THE ANIMAL EXPERIMENTS.

Be that as it may, there is no doubt that SMIRHOFF's method, while yielding very good clinical results on account of the non-appearance of the abscess—to call it so—yet left a certain lacuna after itself. How, then, are we to account for the absence of the abscess? It must be conceded that the explanation given by LUTON was far from satisfactory: indeed, in order to find it rational, it would be necessary to accept as an axiom that deep injections reach always the parenchyma of the muscles, but never the connective intermuscular tissue,—a circumstance very difficult to decide, if we bear in mind the various lengths of the needles, the unequal development of the gluteal muscles in different individuals, the thickness of the subcutaneous panniculus adiposus, which varies considerably, not only in both sexes, but in individuals of the same sex. And is it probable that the medicine injected will remain exclusively under the direct dependence of the circumscribed medium which it has reached, without being in the least affected by the general nutritive currents of the organism? Such are the doubts which have sprung up in my mind, and which I have tried to elucidate by a series of experimental researches on animals in the laboratory. And here, I imagine, some one may meet me with an objection such as this: *Is it logical to apply the results obtained, by experiments on animals, to man?* I would reply, certainly not, as a rule; but the special case constitutes one of the many exceptions to the rule, inasmuch as the local accidents consequent on injections, and observed by me in guinea-pigs or in rabbits, correspond so com-

pletely with those described by SCARENZIO, RICORDI, and especially by BAKER, in the few autopsies performed, as to readily convince me that the local and general action of calomel injections upon man are not different from those observed in animals. The questions which I propose to resolve so far are the following :

1.—What is the nature of the local process developing itself as a consequence of hypodermic or parenchymal injections of calomel?

2.—To what cause should we attribute the process—whatever it may be, and how does it terminate?

3.—At what point of time, approximately, occurs the transformation of the injected protochloride of mercury into bichloride of mercury?

4. What influence do iodide preparations simultaneously administered exercise on the transformation itself?

DETAILS OF METHOD EMPLOYED.

Before proceeding to the injections, it was necessary to determine the dose of calomel to be employed in each of them; and since a quantity of 20–40 centigrammes can, in general, be tolerated by man without any notable disorder, a dose of $\frac{1}{2}$ –1 centigramme would on a par be pretty well supported by rabbits averaging 1300 grammes in weight, if we bear in mind that the resistance of such animals to mercurial salts in general differs very little or not at all from that shown by man. Nevertheless, I have very rarely reached a dose of half a centigramme; the highest doses used were 0.002–0.005 gramme for the larger rabbits, and 0.001–0.003 gramme for those of smaller size; for large guinea-pigs $\frac{1}{2}$ –1 milligramme. The excipients employed by me were: English glycerin, perfectly neutral, absolute or diluted in equal parts with distilled water; emulsion of gum arabic and vaselin oil; all previously sterilized by the same process that is used in the preparation of culture-media for micro-organisms. The instrument for the injection was the common syringe of PRAVAZ, mounted in bone, with steel needle, of medium thickness, sterilized before and after each injection

(as well as the barrel of the syringe) by means of washing with a solution of $\frac{1}{1000}$ sublimate. Before filling the syringe, I always carefully shook the liquid for a long time in order to secure the equal and uniform mixing of the medicament, taking care at the same time to perform the injections with the greatest possible rapidity, so as to prevent the calomel powder from depositing itself on the surface of the piston, or on the walls of the barrel of the syringe. The skin of the animals had always been shaved at the place of puncture to the extent of 4–5 sq. centimetres [$\frac{2}{3}$ – $\frac{4}{5}$ sq. in.], and then washed with the sublimate solution. After the injection, I applied a coating of iodoformized collodion on the small opening made by the needle.

FIRST OBSERVATION.

A gray rabbit weighing about 1260 grammes. Every sixth or seventh day I practiced, in the way previously set forth, a parenchymal or subcutaneous injection of calomel atomized in neutral glycerin in the proportion of 2 per 100; the amount each time being 15 centigrammes of the liquid (3 milligrammes of the medicament). The animal died after 14 injections, of which 4 were in the parenchyma of the legs, the remaining 10 in the subcutaneous connective tissue of the back and of the breast. At the autopsy I found at all the seats of the punctures as many nodules, varying in size from scarcely a medium pea to a large filbert: some—in general the smallest and the earliest—of a hard consistency; others, larger and at the same time more recent, were so soft as not to allow of entire enucleation from the seat occupied by them, because the thin involucre which inclosed them became lacerated at the least touch, giving rise to an effusion of dense and milky substance. All the nodules, and especially the earliest of them, were detached with a certain difficulty, owing to their intimate connection with the tissues amidst which they were lodged.

SECOND OBSERVATION.

Black rabbit weighing about 1300 grammes. Every eighth or tenth day I injected into the

subcutaneous connective tissue or in the glutei 4-5 milligrammes of calomel, suspended in 20 centigrammes of a gummy solution. The animal died after 7 injections, of which 2 were in the parenchyma of the right leg, and 1 in that of the left leg. At the autopsy I found 7 nodules which, in general, were of somewhat larger size than those found in the first rabbit. Also in this experiment I observed that the softest and largest nodules corresponded to the latest injections, whereas the smaller and harder ones—resembling cicatricial tissues more than anything else—corresponded to the earliest injections. In the glutei of the right leg there seemed at first to be only one nodule of irregular form; but subsequently, on a more searching observation, I found two nodules superposed one upon the other so as to present the appearance of one only.

THIRD OBSERVATION.

Gray and white rabbit weighing about 1050 grammes. I injected every tenth day 3 milligrammes of the medicament, atomized in a mixture of equal parts of glycerin and distilled water; two days after the third injection, practiced very deeply into the left leg, the rabbit died. At the place of the two first punctures I observed the ordinary nodules, the first of which was very small, and so hard that it could not be crushed between the fingers; the second nodule somewhat larger and softer. At the seat of the third injection could be observed, instead of the ordinary little tumor, a blood-clot in the middle of which lay the entire medicament.

FOURTH OBSERVATION.

White rabbit weighing about 1200 grammes. I practiced 5 injections of the same mixture and dosage as in the preceding experiment; 2 deep injections into the left leg and 1 into the right leg, but into the subcutaneous tissue of the limb itself. The interval between each two of them was about 8-9 days. The animal died after 43 days, and the nodules were equal in number to the injections that had been practiced; but it is noteworthy that the earliest of them did not exceed the size of a medium pea,

and may be more accurately defined as the retraction of a scar amidst the muscular parenchyma.

FIFTH OBSERVATION.

Small white rabbit, weighing 850 grammes. I injected into the parenchyma of the right leg 3 milligrammes of calomel suspended in vaselin oil, and 13 days later I repeated the experiment on the left leg. The animal died on the thirty-second day after the first injection, and at both places I found the ordinary small tumors, exhibiting the same signs as previously cited.

SIXTH OBSERVATION.

I injected into the glutei of a large guinea-pig 1 milligramme of calomel suspended in 10 centigrammes of vaselin oil. The animal died after 27 days, and at the seat of the puncture there was nothing but a fibrous thickening of the intermuscular connective tissue, of the size of a rice-grain.

SEVENTH OBSERVATION.

I injected into the right gluteal part of another guinea-pig 2 milligrammes of calomel in 20 centigrammes vaselin oil. The animal died 13 days thereafter, and at the autopsy I found in the glutei a hard and elastic little tumor, somewhat flattened, of the size of a large pea.

EIGHTH OBSERVATION.

I made a deep injection into the right leg of a large guinea-pig with 1 milligramme of calomel in 10 centigrammes of a mixture of glycerin and water; two days later, I repeated the operation in the left leg. The animal died 28 hours after the second injection. All the tissues pierced by the needle appeared considerably hyperæmic in connection with the first as well as with the second puncture. In the muscular mass of the right leg, where the medicament had been deposited, the inflammatory focus was already formed; the surrounding muscles appeared hyperæmic and tumefied; but the tumescence as well as the hyperæmia—considerable in the vicinity of the central focus—decreased gradually in their extension toward the sound parts. In the left leg and in connection with the puncture, the same signs

could be observed, although a shade more circumscribed.

NINTH OBSERVATION.

Into another guinea-pig I injected under the dorsal skin $\frac{1}{2}$ milligramme of calomel suspended in vaselin oil (10 centigrammes of the excipient). The animal died 59 hours after the operation, and the phenomena met-with at the autopsy, in the subcutaneous connective tissue, corresponded entirely with those set forth in the preceding experiment and observed in the muscles.

TENTH OBSERVATION.

White and black rabbit, weighing 1,170 grammes. I injected deeply 3 milligrammes of calomel suspended in vaselin oil into each leg, with an interval of 9 days after each injection; simultaneously I administered every day *per os* 5 centigrammes of potassium iodide in 5 grammes of distilled water (solution of 1 per 100). The rabbit died after 11 days. At the autopsy, the first nodule in the right leg reached the size of a filbert; that in the left leg the size of a large almond: the first was rather soft, and the second so soft as to dissolve between the fingers.

ELEVENTH OBSERVATION.

Gray rabbit weighing 1,100 grammes. I injected under the cutis of one leg 2 milligrammes of calomel suspended in vaselin oil, and commenced the daily administration *per os* of 3 centigrammes of sodium iodide. Ten days later I practiced a second deep injection into the other leg, with the same dosage as in the first. The animal died 8 days after the second injection, and presented, in connection with the two injections practiced, the ordinary small tumors, differing in nothing from the others observed.

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All the aforesaid nodules were carefully enucleated and hardened in absolute alcohol.—I present here the local manifestations observed by me subsequently to each injection into the subcutaneous connective tissue, since in those practiced into the muscular masses there were no symptoms at all revealing in any way the

process taking place in the depth of the tissues, although the effects in both locations were constantly the same. From $\frac{1}{2}$ –1 hour after the injection I observed, at the seat of the puncture, a tumescence about the size of a cent, the limits of which could not be precisely determined, because they were imperceptibly lost in the surrounding normal connective tissue. The tumor presented to the touch a hard elastic consistence, and it was, no doubt, sensitive to pressure, as this excited manifestations of pain in the animals. Twelve to twenty-four hours later, the local manifestations were not noticeably changed. After the lapse of two days the transformation showed signs of becoming circumscribed, exceeding but slightly the size of a two-cent piece; the consistence was somewhat greater; it seemed to be less sensitive to moderate pressure, and to merge into the superior cutis. After six days the tumor became still more circumscribed; mobile under the skin in the surrounding connective tissue, it was somewhat oblong and rounded in form, for it could be distinctly seen after the collateral oedema had decreased, if not wholly disappeared. In the following days the subcutaneous tumors presented nothing specially noteworthy; but a minute observation showed, however, that the volume of each tumor was decreasing, equally with the pain on pressure; until it forthwith ceased altogether; and shortly afterwards it became very difficult, if not impossible, to feel the exceedingly small residual alteration under the skin. All this occurred in an interval of about 30 days. In the deep injections, as already noted, the only appreciable signs were the manifestations of pain evinced by the animals at every severe pressure—manifestations which gradually went on decreasing, until they ceased entirely after a period of about 20 days. Most of the nodules enucleated and indurated in alcohol—and especially the subcutaneous ones—appeared rounded and ovoid in form, and always more or less flattened. The nodules lying in the gluteal parts or in the parenchyma of the same, had no definite form, but appeared compressed

or elongated in various directions. The nodules varied in size and consistence; but, in general, it may be affirmed that the earliest of them were always the smallest and hardest, while the most recent ones were larger and softer.

These latter, whether fresh or indurated, were found, upon macroscopic section, to consist of: a central or medullary part, resembling a caseous substance, soft, perfectly white and homogeneous, and which in its turn presented a grayish spot at the centre and an external part of a shining ivory-white color, and of great resistance, which surrounded the central part like a shell. The nodules of somewhat earlier date exhibited also two similar zones; but the relations between the first and the second zone were somewhat changed: thus, while the first zone became continually smaller, and the central spot gradually showed a tendency to disappear, the thickness of the external one increased simultaneously, until, in the earliest nodules, the central or medullary substance disappeared altogether, and there remained nothing but a very small nodule consisting of a white and lustrous tissue.

THE CHEMICAL PHENOMENA.

As I had already found in a blood-clot, produced by the injection (THIRD OBSERVATION), a powdery substance which could be nothing but the injected calomel, the idea occurred to me that the grayish macula of each nodule was formed by the drug itself, the more so as it showed a tendency to disappear in the same degree as the nodules became older. There remained to explain why its white color here had changed into an intense brown; and even this seemed to allow of a rational explanation, by assuming that the sulphur contained in the albumin of the tissues had transformed the injected calomel into black sulphide. As will be presently shown, I was not mistaken; but desiring, meanwhile, to assure myself of the transformation into bichloride of mercury, as maintained by SCARENZIO, I immersed the nodule, cut in half, in a recipient filled with ammonia sulphide, according to the method

described in another article by me(*), and shut it up hermetically there until it had sunk to the bottom. After removal its color was changed, inasmuch as the medullary substance, previously white, had become so brown as scarcely to allow the naked eye to perceive the grayish central zone, whereas the external integument was intensely and uniformly black. The reaction itself was obtained in sections of nodules mounted in celloidin, and the sections—enclosed in glycerin and observed with a microscope of small magnifying power (Zeiss, Oc. 2, ob. B. tub. rac.)—showed that the central part owed its grayish appearance to the presence of a large number of calomel grains transformed, perhaps, into black sulphide; the medullary substance was brown in color, and the external substance intensely black.

Evidently, therefore, the caseous substance—to call it so,—and its cortical part especially, was saturated with mercuric bi-chloride, inasmuch as the black color assumed by the tissues could be attributed to nothing but the transformation into sulphide of mercury, undergone by the bi-chloride in presence of the reagent. As long as the microscopic examination of the nodules disclosed in them the presence of calomel granulations or sulphide—to call it so—a reaction took place in a constantly typical manner; but when the calomel had completely disappeared since several days, the reaction, both in the mass and in sections, became scarcely appreciable, until it at last ceased altogether 5 or 6 days after the disappearance of the injected substance. SCARENZIO was therefore right in his supposition when he, at the very outset of his experiments, maintained that the calomel would be gradually transformed into bi-chloride; and I can add, as a result of the micro-chemical examination of a number of nodules, that a medium dose of 3 milligrammes of calomel, to become transformed into a soluble and absorbable preparation, requires about 10–15 days in rather large rabbits; and the same time, approximately, is

(*) DE MICHELE: Il Mercurio nei tessuti. *Riforma Medi.* 1891. 170, 171.

necessary in guinea-pigs for the complete transformation of 1 milligramme of the medicament in question. When, however, one proceeds simultaneously with the administration, *per os*, of doses of potassium iodide or sodium iodide in proper proportion to the amount of the hypodermic or parenchymal injections of calomel, the transformation is very rapid. This can be deduced not only from the fact that very recent nodules show but very scanty calomel granulations, but also from the death itself of the animals thus treated, which occurs considerably more swiftly in them than in animals subjected to mercurial treatment alone (see 10th and 11th observations, preceding).

THE HISTOLOGICAL PHENOMENA.

And now, what is the histological structure of the nodules? I believe it at least superfluous to set forth in detail the processes to which I subjected the specimens before obtaining the microscopic sections, because they are known to all. Some of the nodules were stained in the mass with BIZZOZERO'S hæmatoxylin, others with ORTH'S lithio-carmin, others finally with WEIGERT'S picro-lithio-carmin. For the imbedding I have preferred celloidin, as permitting the various parts of each tumor to preserve their relations to each other; and I present here all that I have been able to observe.

The subcutaneous tumors, extirpated 3-4 days after the injection with a portion of the surrounding connective tissue, appeared to be constituted of an accumulation of leucocytes, resembling a purulent aggregation; this focus, far from being distinctly limited by normal or newly-formed tissue, was continued by an infiltration of the nearest connective tissue, gradually decreasing in amount as the process extended from the focus to the normal parts.

In the intramuscular tumors the same fact was repeated in all respects: the fibrillary connective tissue showed itself infiltrated with an enormous quantity of corpuscles; the muscular fibres surrounding the calomel, compressed and diminished by the infiltration of the connective tissue. In both, the central part of such ac-

cumulations of leucocytes appeared spread-over with a large quantity of calomel granules, which in the parenchymal nodules were still surrounded by a few muscular fibres. In the tumors of 6-7 days' duration, the central aggregation always persisted, although separated from the surrounding tissue by means of a thin capsule of newly formed connective tissue, constituted by the organization of elements proceeding from the surrounding parts; the infiltration of the more proximate tissues up to a certain distance always persisted. In the intermuscular nodules, the nearest fibres appeared still more compressed and shrunken; the calomel granules in the centre were notably diminished, and in the midst of the infiltration could still be observed some semi-atrophied fibres. In tumors of 9-10 days' duration the surrounding infiltration subsisted continuously, although a shade less intense and extended; the muscular fibres, nearest the focus, in the parenchymal tumors appeared atrophied; the connecting capsule was still thicker, while the central aggregation was not only more limited but had assumed the aspect of a very fine detritus, and the granules of residual calomel were but very few; nothing was seen in the middle of the detritus but some striated fibres. The nodules of 15-25 days' duration showed no more traces of calomel; the surrounding infiltration was still more limited, the thickened capsule and the central part notably restricted. From the 14th to the 15th day, the sections of these nodules, although not presenting a single granule of calomel, reacted still, as I have already noted, to ammonium sulphide.

The histologically notable fact in this case was the decrease of the infiltration in the surrounding tissues, the progressive thickening of the capsule, and the diminution of the central focus, which facts could be continuously observed even in nodules of 25, 28 and 33 days' duration—an epoch at which the very minute nodule consisted only of newly-formed fibrous tissue, lying upon the connective tissue, or in the muscles, in appearance similar to a retracted scar, and which, in the muscular masses espe-

cially, sent forth small prolongations into the interfibrillary connective tissue. The surrounding parts were normal; the nearest fibres only were completely atrophied as a result of the severe compression exerted by the projections of tissue formed amid them. The histological structure of the nodules, in varying stages of development, demonstrates beyond doubt that they represent the product of an exudative inflammation with a subacute development, owing probably—as suggested by SCARENZIO and RICORDI—to the irritation produced by the chemical metamorphosis which occurs in the substance injected into the animal tissues. These constant inflammatory neoformations, then, certainly cannot be attributed to the penetration of micro-organisms, because the bacteriological examination of sections of many nodules by GRAM'S method, several times repeated, and afterwards examined by those of LÖFFLER, WEIGERT, KÜHNER, SCHRÖN, and others, has confirmed the opinion of KOPP and CHOTZEN, that the so-called abscesses consequent on calomel injections must be regarded as being aseptic, from the absence of organized pyogenic germs in them. Whether the efficacy of this method of medication is due to the production of the nascent bi-chloride amidst the tissues, or to *very slow* transformation of chloride of mercury into bichloride, is a question which I consider foreign to the subject treated by me.

THE CONCLUSIONS

at which I have arrived by my experiments are the following:

That calomel, administered by injections, is better tolerated, even in strong doses, than any other mercurial preparation; that it always produces in the tissues an inflammatory process with a subacute development, the final issue of which is a small residual and persistent cicatrix; that a dose of about 20 centigrammes of the remedy in man requires for its transformation into albuminate and its absorption about 15–20 days; that iodide preparations administered at the same time by way of the stomach, accelerate considerably this transfor-

mation, so that they ought not to be used without great caution; that on account of its great efficacy, admitted at the present day by all clinicians, its moderate cost, and its capability for effecting the specific cure by two or three injections at long intervals without the least danger, the SCARENZIO-SMIRHOFF method is not only a most valuable resource, but also one of the most important improvements introduced into anti-syphilitic therapeutics in the last thirty years.

12 Vico 1°, Montesanto, NAPLES, Italy.

TUBERCULOSIS.—[Treatment by Electricity].

By J. KORNITZER, M. D.

II. (*)

On taking a case of this malady in hand for electric treatment, the practitioner must fairly educate his patient, if an adult, to the new idea.

The sufferer must be told that his is a *constitutional disease of the tissues, on account of which* every slight bronchial catarrh,—a trifling thing in others,—is liable to inflict serious lesions to his lungs.

He must be told that *it will take quite a while* before the physician will be warranted to declare himself master of the situation by having restored to normality, or nearly so, all that of the lungs which was rescuable.

He must be told that, like other people, he is sure to contract his coughs and colds, and, occasionally, severe ones, too; but that, under the ægis of electricity there is no danger of new lesions (ulcers) being set in his lungs, or old cicatrices torn open.

He must be told that he will expectorate, and this, possibly, for years, on account of a considerable proportion of the mucous membrane of his lungs (in widened bronchi and caverns) not being easily, if at all, restorable to healthy action; that, however, under the *uninterrupted* use of electricity, the mucous membrane will be prevented from becoming pyogenous, but will be kept in a comparatively benign muciparous (catarrhal) condition.

He must be told that, on account of that

(*) No. I: see *June Number* of this journal.

catarrh, his cheeks will, for years perhaps, become a little rosy every afternoon; but that, protected by electricity, he need not feel alarmed at all; because the slight fever is of mere catarrhal and not of hectic nature.

When called-upon to see a patient, not too far gone, but prostrate with the alarming symptoms of phthisis, you cannot dispense with quinine, opium, and atropine; but leave-alone creasote and the like. Give sterilized milk in *two-ounce doses* every two hours and as much of easily digestible food as the patient will *crave-for and relish*. Twenty ounces of sterilized water, acidulated with six drops of muriatic acid, c. p., may be consumed in the twenty-four hours, in two-ounce doses, after some of the milk-doses.

The application of electricity is as follows:

The two sponge-electrodes of a *constant* current of six to ten cells are alternately placed: the one to the front of the thorax in the region of the apex of the diseased lung, and the other to the back between the scapula and the spine, for ten to fifteen minutes and with *frequent* small interruptions.

Single painful spots in the chest, pointed to by the patient, indicate circumscribed pleurisies, and ought to be touched with the *negative* electrode for a minute or two, while the positive one rests in the pit of the stomach. The larynx, when painful, is to be taken between the two electrodes for a few minutes, but not before lowering the current down to four cells.

For the rest of the day and for the night use the following simple apparatus.

Get two circular plates, four to six inches in diameter; the one of zinc, the other of copper or, better yet, pure silver. The thinner these disks the better. Have the edges thereof turned-back a little to the side that is intended to be averted from the wearer's skin, and which we will call the *outside* in counter-designation to the *inside*, which will lie immediately on the skin. In a line near to, and parallel with, the periphery, pierce in each disk four small holes $\frac{3}{8}$ of an inch distant from each other. In the middle of this line erect a perpendicular in the direc-

tion toward the centre of the disk, and in this line, at about $\frac{1}{2}$ inch distance from the periphery, make two more holes about $\frac{3}{8}$ of an inch apart. In perforating the plates, the awl ought to be applied to the inside.

Now connect the two disks by sewing, to each of them, one of the two ends of a piece of suspender 10 inches long by $1\frac{1}{2}$ wide. Sew to *outside* of disks,—using the *four outer* holes of the latter. To the *outside of this band* sew, by surrounding stitches, a piece of thin, soft rubber-tubing about $9\frac{1}{2}$ inches long. Through this pass a piece of very thin copper or gold wire of sufficient length; and, by passing the ends of this through the *two inner* holes of the respective disks, the electric connection is established,

This apparatus (which is to be hung by means of the band over the shoulder,—copper or silver in front, zinc behind) yields a very slight current only, it is true; but, without taxing the nervous system, it can be worn day and night with only an occasional removal of it for a few hours. Wherever the patient may be, he breathes ozonized *quasi* pine-woods' air because he generates it in his lungs.

If deemed necessary, a second disk of the same metal may be appended to each primary one of the apparatus, in order to obtain larger contact-surface.

All the attention required of the wearer to pay to his little battery is, to keep the disks in close contact with his skin; clean and bright by drily rubbing them, mornings and evenings, with powdered pumice-stone; and in *perfect connection*. (C,C,C=Contact, Cleanliness, Connection!)

Copper-wire must be changed every week or so. A spool of it will last for years.

In incipient cases (or even advanced ones, where, however, the symptoms are not urgent and the patient "up and around"), this simple apparatus, if properly used ("C,C,C!"), will, by itself, do gratifying service; but these patients need a starting and training by a dutiful and expert physician, who knows how to handle that most reckless set of all sufferers.

The same apparatus will prove more than an

adjuvant in the following classes of cases; namely: BRONCHITIS, senile, juvenile, acute or chronic,—also cardiacal; in common COUGHS and COLDS; in WHOOPING-COUGH; ASTHMA; INFLUENZA (*probatum est!*); after PNEUMONIA (an abortive treatment of which I beg leave to describe in my next article); and last, but not least, in NEURASTHENIA.

SOCORRO, N. Mex.

SCURVY IN AN INFANT.

By THOMAS H. MAYO, M. D.

I was called to see Dr. S.'s child, 20 months old, on July 12th, 1891. He had not been sick, but puny since January before; his skin had a dark unhealthy appearance, as if slight venous congestion had set in. About the 4th or 5th of July, he commenced complaining of pain in the right thigh, supposed to have been hurt by the nurse; he could not use that leg, and cried if it was touched; gums much swollen and of the color of dark venous blood. Wherever he was bitten by an insect, or pricked with a pin, the puncture turned black instead of red. Had "cut" sixteen teeth without much trouble. On examination of the mouth, only three of them were visible,—the rest covered by the swelling. Had never had trouble, of any consequence, with the bowels. Had been under medical surveillance since January, but had during that time retrograded. The parents' anxiety about the child's leg made them send for me.

Upon examining the mouth, I passed a lancet through the swollen gums, and could feel no resistance to the lancet, more than would have been felt in passing through a blood-clot, though there was a visible, organized membrane over the dark venous blood. Pulse and temperature normal; thought the latter a little below the natural standard, but was not certain, as the restlessness of the child made the application of my thermometer quite difficult. I examined the thigh, but could find no evidence of injury or disease, except the pain. The father thought there might be dislocation of the hip joint; but, as there was no evidence of it, I denied it.

The diagnosis was to my mind obscure, but, I was inclined to think it purpura. I ordered an astringent mouth-wash, and turpentine internally. After a night's reflection and the examination of authorities on children, I concluded it was not purpura, but must be *scurvy* (with which I had before been familiar, in California, in 1849-50). There was no such title in any work on Children in my possession, and as children in our country are usually fed on milk (an antiscorbutic) I could not account for my diagnosis. Upon inquiry, next morning, I found this child had been reared exclusively on Reed & Carnrick's "Soluble Food." This confirmed my opinion.

I gave him no medicine, ordered fruits and lemonade, salad made of scraped raw Irish potatoes, seasoned with lemon-juice and sugar; no treatment to the leg; mouth-wash continued; and milk to be substituted for the Reed & Carnrick's "Soluble Food." (The last direction was not carried out to the letter, as the child fretted for its accustomed food. The remainder of the prescription was strictly obeyed.)

The child improved in health and flesh immediately, and in three weeks was running about, free from all pain, with only a little sponginess of the gums, which in two months were perfectly sound with teeth healthy, firm, and white. He has not taken a dose of medicine, and continues healthy up to date.

COLUMBUS, Miss.

DILUTE HYDROBROMIC ACID (15-20 minims) is prescribed by Dr. B. W. RICHARDSON with Digitalis infusion ($\frac{1}{2}$ ounce) for *noises in the head*, with throbbing.

ERGOTIN, subcutaneously, is considered by Dr. STEWART superior to aconite or gelsemium in *facial neuralgia*. It is stated that generally one injection is sufficient.

CALOMEL, according to Dr. G. PATEIN, is incompatible with Hydrocyanic Acid; mercurous cyanide forms, which is ultimately decomposed into mercuric cyanide and metallic mercury.

MEDICINE ABROAD;

AS REPORTED BY OUR FOREIGN STAFF.

European Editor: H. BAILLON, M.D.,

Professor in the "Faculté de Médecine de Paris"; President of the "Société Linnéenne de Paris"; formerly Professor of Hygiene at the "École Centrale des Arts et Manufactures"; etc., etc.

{ Merck's Bulletin Office, 12 Rue Cuvier,
Paris, June 14, 1892.

At the ACADEMIE DE MÉDECINE, as well as at the meeting of the SOCIETY OF BIOLOGY, the discussion turned on the question of the

FLAGELLA OF THE BLOOD

and of the *flagellate bodies*, indicated by Dr. LAVERAN as the infecting agents of paludism. Dr. A. TREILLE has observed these bodies in the urine of a patient attacked with stubborn renal hæmaturia. According to his idea, the flagella and the flagellate bodies are not hæmatozoa, but actual elements of the blood; and he thus explains how it is possible to meet with them in the blood of persons suffering with "la grippe," typhus, anæmia, etc. The "heads" of the flagella are small, mobile globules or microcytes, which carry with them the filaments produced by the disintegration of the nuclei of the leucocytes; and the flagellate bodies are but globules of the blood, to which adhere some flagella, which in turn break away from them at certain periods. They are therefore but pseudo-parasites of the blood and not protozoa; they can neither be isolated nor cultivated, and have, therefore,

NO PATHOGNOMIC VALUE.

Dr. LAVERAN declares, on the contrary, that he has never met with these elements but in cases of *intermittent fevers*, and that he considers them as being the

INFECTING AGENTS.

But he has never thought that these elements alone played the part of infection. According to him, it is necessary that their existence coincide with that of the spherical and crescent-shaped bodies, described by him, and that the flagella of Dr. TREILLE are pseudo-flagella, of no consequence. But Dr. TREILLE, on the other hand, declares that he has just detected

the presence of the crescent-shaped bodies in the urine of a hæmaturic patient!

CHOLERA IN PARIS.

Excitement is at its height at Paris; the Cholera is within its walls! Many deaths have been noted. The choleraic "Comma-shaped Bacillus" has been observed. At a clinic, intended for effect, Professor PETER declared that he saw no difference between "this cholera nostras" ["endemic" cholera] and Asiatic cholera! Others sustain the theory that these are two distinct diseases, and point to the fact of the non-transportation of the present disease outside of Paris (*). *We shall soon see!*

June 28.

Nothing was discussed to-day, at the ACADEMIE DE MÉDECINE, but

GREAT SURGICAL OPERATIONS:

Gastro-enterostomy (MICHAX), Pyloroplasty and Pylorotomy (PÉRIER), Symphyseotomy (TARNIER). *This latter operation is decidedly coming into vogue.*

In the first of the above-quoted cases, the operation was really remarkable. It was a matter of cancerous lesions reaching back some ten years. In the last two years the patient had lost 28 kilogrammes (59 pounds) in weight; and his debility was extreme. The operation was performed *entirely outside the abdomen*. The posterior surface of the stomach was made fast to the anterior surface of the first loop of the jejunum. The stomach and the intestine were then replaced in the abdomen, and the abdominal wall was closed. There was no elevation of temperature, not the slightest sign of vomiting, and no pain. The patient gained 9 kilogrammes (19 pounds) in forty-five days. All

(*) Such "transportation" has since been reported.—Ed. "M. B."

this is not absolutely new, it is true, but will the reader consider him absurd who announces that after the lapse of a few more years, when any portion of the alimentary canal is definitely diseased or destroyed, it may be replaced by another; or that a portion of the alimentary canal taken from a recently deceased subject having died from traumatic causes, or even a portion taken from a live and healthy animal, as near as possible to man in its zoölogical and physiological characteristics,

MAY BE GRAFTED •

upon the patient. It is really impossible to deny that the more or less near future may have such surprises in store for us.

An important *dietetic* question was discussed by Professor G. SÉE; we shall analyze it in one of our later letters.

WISDOM OF THE AUTHORS:

ABSTRACTED FROM RECENT MEDICAL WORKS.

* * *

MASSAGE.—Dr. CASTEX.

The clinical results obtained by massage are as follows:—

In *simple contusions*, it brings about the rapid disappearance of divers disturbances, especially pain.

In *contusions of the joints*, it dissipates the muscular reflex contractures or the pareses, but above all it prevents obstinate amyotrophy which is the most serious of complications.

Applied to *sprains*, it is remarkable for the rapidity of its good effects: the looked-for result is obtained in three or four days.

In *dislocations*, recourse must be had to it as soon as the reduction is assured, as it reduces, in the shortest time the swelling, ecchymosis, and pain; it arouses the muscular fibre from that local stupor into which it is plunged by the traumatism; and it prevents atrophy and lingering stiffness.

Applied to *juxta-articular fractures*, it soon subdues both pain and swelling; if recourse is had to it after the removal of apparatuses, it limbers-up the parts and dissipates the œdema. A simple fracture, without deformation of the

lower end of the radius, is cured in a fortnight; whereas, at least, forty days are necessary when immobilization with plaster-dressings is resorted-to.

Against *acquired amyotrophy*, massage shows itself powerless; if applied in the earliest stages, it may prevent the further progress of the affection.

The clinical conclusions are based on the histological results: a wounded muscle to which massage is not applied presents a diffuse sclerosis, with hypertrophy of the adjoining connective tissue in the various parts, interstitial hæmorrhages, engorgement of blood-vessels, and hypertrophy of their outer coat; whereas a wounded muscle, treated with massage, offers a normal histology. This is *restitutio ad integrum*.

The blood-vessels are normal in the muscle to which massage has been applied; in the muscle not so treated, they present a hyperplasia of the external tunic. The nerve-filaments, normal in the muscle to which massage has been applied, show signs of peri-neuritis and interstitial neuritis in the muscle not treated with massage.

The lesion of the nerves is more marked than that of the blood-vessels.

Upon the whole, according to the researches made by the author, it is proven, *de visu*, that massage acts by deterging a part of the variously noxious substances which the traumatism has introduced, by bringing the affected part back to its normal state, and by so preventing the process of diffuse sclerosis which would otherwise result.

PLACENTAL HYPERTROPHY IN CASES OF SYPHILIS.—Dr. J. CORREA-DIAS.

In thirty-four syphilitic fœtuses at maturity, the average weight of the infant being 2,919 grammes, the average weight of the placenta was 681 grammes.

In eighteen fœtuses at eight months and eight months and a half, the average weight of the child being 2,312 grammes, the mean weight of the placenta was 603 grammes.

For seven months and seven months and a half: foetus, 1,547 grammes; placenta, 532 grammes (average weight).

Syphilis may simultaneously affect the child and the placenta, or one or the other, only. The characteristics of a syphilitic placenta are its pallor and its hypertrophy; it is, besides, soft and friable. Its weight is always more than that of a healthy placenta, given the same age and same weight of foetus.

—
 SYMPHYSEOTOMY.—Prof. A. PINARD.

Nowadays, when a woman has an insuperable contraction of the pelvis, after the fruitless use of the forceps, either the head of the foetus is crushed, or cæsarian section is performed. When the child is dead, basiotripsy is indicated; but if the child is alive, it is customary, in France, to perform an operation which saves the mother as surely as it kills the child, or one which saves the child while it endangers the life of the mother.

In 1768, a French student named SIGAULT, successfully performed section of the symphysis pubis on a soldier's wife; however, the invention of this operation has been wrongly attributed to S. PINEAU. The Faculty rewarded SIGAULT; but his discovery was unfavorably received by the Academy of Surgery. BANDELOCQUE was one of the most bitter opponents of symphyseotomy. When the women died, he blamed it on the operation, and declared the operation useless when they recovered. Mme. LACHAPELLE shared BANDELOCQUE'S prejudices. Together with most of the French accoucheurs, E. G. J. DE SIEBOLD has said: "there is much truth in the verdict of BANDELOCQUE, which insists that every time the child has been saved, the mother has been killed; or when the mother was saved, the child was killed. When both were saved, the operation was not necessary." He adds that, "for all those who are not blind, symphyseotomy remains but a historic curiosity, to which one may apply the proverb: *Felix quem faciunt aliena pericula cautum*." Most English and German accoucheurs were of the same opinion.

In Italy, on the contrary, symphyseotomy took root. Professor MORISANI, of Naples, has praised it as useful, beneficial, and destined to take a prominent place in operatory obstetrics. Professor PINARD has shared this view since he has learned the results obtained at Naples, since 1887, and he propounds the three following questions on this subject:

1.—Can considerable enlargement of the pelvic cavity be obtained without occasioning serious lesions? How great can this enlargement be? Answer: Enlargement is possible; it is considerable; maintained within proper limits, it may be obtained without any alteration of the pelvis save the detachment of the anterior ligaments of the sacro-iliac symphysis.

2.—Is symphyseotomy within the reach of all accoucheurs, and how must it be performed? Answer: It is comparatively easy, no matter how done. Dr. SPINELLI, MORISANI'S former assistant, has performed this operation in Paris, in the same manner as it is performed in Naples. The *modus operandi* could be simplified and rendered more sure. The symphysis can be divided without injuring either the bladder or the peritoneum; and it is not necessary to have at one's disposition a complicated instrumental outfit. A simple bistoury with a short, rather thin, but strong blade, will suffice, and will be preferable in the majority of cases. An incision 8 to 10 centimetres [$3\frac{1}{5}$ –4 inches] in length is made in the skin and pre-pubic adipose tissue ending at the clitoris, and slightly deviating there in order to spare the organ. The recti muscles being separated in the upper part of the wound, the finger will penetrate into the prevesical cavity, protect the bladder, and feel the posterior surface of the symphysis. Then the symphysis is divided, downwards and backwards, by several strokes of the bistoury.

The operator then tries to force the triangular ligament with his finger, not stopping until he can pass his finger easily up and down the whole length of the pubes; he also convinces himself, by abducting the thighs, that the pubes are capable of being separated 4 to 6 centimetres [$1\frac{3}{5}$ – $2\frac{2}{5}$ inches]. This done, a

provisional antiseptic bandage is applied, and attention given to the delivery itself.

3.—What are the consequences of the operation, as far as they relate to the consolidation of the pelvis, to the upright posture, to the gait, and to ulterior pregnancies? Answer: Consolidation is the rule after spontaneous rupture of the symphysis. At the Naples hospitals, consolidation of the pelvis, with a proper degree of immobility, is constantly effected in about a month.

If these three "answers" are true, symphysiotomy should be performed everywhere, and its beneficial results enjoyed by all. It is necessary to react on the anathema of BANDELOCQUE and his contemporaries. Are not the evils attributed to the operation, more often traceable to infection? In 12 cases of symphysiotomy, performed at the obstetrical clinic of Naples, the 12 mothers recovered, and 11 living children were ushered into the world. These results are conclusive. Very often, as predicted by TARNIER, symphyseotomy will become the complement of premature delivery, in many cases, and will be substituted for embryotomy and for cæsarian section in many others. Accoucheurs would have to impose on themselves the torture of crushing living infants.

MUSCULAR TWITCHING IN CHILDREN, CONVULSIVE PARAMYOCLONUS AND ELECTRIC CHOREA.—DR. C. JANOWICZ.

Muscular twitching of children is a simple spasmodic action, without psychic disturbances, which may be called by this name, in contradistinction to muscular twitchings in adults. There exists a marked clinical difference between these two forms. Just as the diagnosis of muscular twitching of adults is easy to establish, so that of children is apt to be confused with paramyoclonus and electric chorea. Paramyoclonus multiplex is a syndrome common to many affections. The cases published under this name may be divided into several groups; but most of the convulsive paramyoclonic symptoms are dependent upon hysteria,

and more often yet upon neurasthenia, which might, perhaps, be considered as the provoking cause of paramyoclonus. Moreover, the differential diagnosis of paramyoclonus from muscular twitching is only possible in some typical cases. Some cases of muscular spasms, united under the name of electric chorea, ought to be joined, in part, to muscular twitching, and, in part, to hysteria. That affection is becoming more and more rare; it has a tendency to disappear, and to be confounded with better defined convulsive affections. On the whole, the three convulsive affections under consideration are but clinical syndromes which are very often confounded, as much from a semeiologic, as from an ætiologic and pathogenic point of view. Their parental relationship is of the closest; their common offspring is hysteria or neurasthenia.

UTERINE PROLAPSUS IN OLD WOMEN. ITS TREATMENT BY INDIRECT COLPOPEXY.—A. LACAZE.

In old women, this affection has a special physiognomy; most often, the uterus is atrophied, and vaginal prolapsus is complete. Its immediate causes are the same as those of hernia induced by feebleness; to wit,—vulvar and perineal relaxation. As a rule, effort does not enter into its production. Its symptomatology is *nil*; and rarely, especially among the better classes, is surgical intervention called-in; it is only the complications which attract the patient's attention. They are frequent among the poorer classes: erythemia, ulceration, total or partial gangrene of the vaginal sac which afterwards constitutes the prolapsus. In simple prolapsus there is no treatment, but the need of such is felt in case of complications.

The pessary, which can be of use in the case of a voluminous uterus, is not practicable in this kind of prolapsus; there are, moreover, many inconveniences attending its use. In old women, the ordinary operatory methods do not seem to be applicable. On account of the atrophy of the uterus, there is no reason for practicing total or partial hysterectomy; on ac-

count of the stretching or atrophy of the long ligaments, ALEXANDER'S operation becomes contingent upon circumstances. Hysteropexy, so useful in cases of retroflexion, must be rejected in the case of old women, where the uterine prolapsus is secondary to the vaginal prolapsus.

The author thinks that, under these circumstances, the physician should have recourse to colpopexy, and he adopts the method of indirect colpopexy, proposed by PICQUÉ. In three cases which he has observed, the fixation of the uterus caused no trouble in the action of the bladder.

Of course, it will not be necessary to take into account, here, the influence which colpopexy might have on the evolution of an ulterior uterine pregnancy,—a consideration which should modify the action of the surgeon in the case of young women. Moreover, the restoration of the vulva and the perineal fundus seems to be indicated as an operatory complement, in the majority of cases.

CLINICAL STUDY OF SENILE MELANCHOLIA IN WOMEN.—E. TOULOUSE.

Old people, and particularly old women, are subject to a special form of melancholia, which the author calls the senile form. This form does not depend on the mere *age* of the patient, but on his or her *senility*, which, earlier or later, is most often brought on by physiological causes (old age), but is sometimes hastened by pathological causes (physical and psychic over-exertion, general disease, alcoholism, heart lesions, encephalic affections, etc.).

This malady has a symptomatology of its own, whose principal characteristics are: intellectual and physical enfeeblement; delirium, of little intensity, but monotonous, with hypochondriacal tendencies; hallucination, rare and with but slight outward manifestations; unusual impulses; incoherent actions. Its evolution is essentially chronic, and the disease tends more or less slowly to dementia; of which, the author thinks, it may be considered as an opening symptom. He thinks that patients affected

with this disease are not very dangerous to others. At times they are passionate, violent; but their attacks of excitement are very changeable and not very lasting. Too 'enfeebled to commit murder, they are, as a whole, dangerous only to very feeble persons. But, as a rule, the idea of suicide is as attractive to them as that of homicide is repugnant.

PROPHYLAXIS IN CASES OF MAMMARY ABSCESSSES DURING PARTURITION AND NURSING.—H. PINGAT.

The author admits that these abscesses are due to micro-organisms which penetrate into the breast, either by way of the lymph or by following the milk-ducts. Their production may be stopped, during parturition, as well as during nursing, by actual prophylactic treatment conforming to the rules of antiseptis. During pregnancy, the treatment should consist in lotions and intelligent hygienic care. During nursing, the treatment should have for its basis dressings of the breast. The kind which the author considers the most efficacious is composed of bandages saturated with a solution of corrosive sublimate, 1:500.

During pregnancy, the author prefers lotions with alcoholized water to astringent lotions and to applications of liniments having almond-oil or cacao-butter for a basis. If, after delivery, lotions of corrosive-sublimate are employed, it will be understood that the nursing mother, before offering the breast, must first wash the nipple and the adjacent parts with a feeble solution of borax or a solution of chloride of sodium.

CONTRIBUTIONS TO THE STUDY OF MERCURIAL TREMOR.—D. DE CHANTREAU.

A great number of the symptoms observed in mercurial poisoning have been attributed to hysteria. They are often independent of it. The toxic combination of mercury and alcohol hastens the appearance of tremor, and renders it more tenacious. It is for this reason that mercurial tremor is more frequent in men than in women, employed in furriery, where workers of both sexes occur in about equal numbers,

and notwithstanding the fact that the women, by reason of their special work in this trade, are more exposed than the men to the mercurial vapors. The proportion would naturally be the opposite if the tremor were dependent upon hysteria.

Mercurial poisoning causes in the human nerves an alteration of the myelin,—a granulous disintegration, with segmentary atrophy, which conditions probably become the anatomical cause of irregularity and delay in the transmission of nervous motor impulses; and also occasion striking analogies between the mercurial tremor and that of myelosclerosis. The author was unable to stop the tremor either by the application of the rubber band or by magnetization; but, by repose and the suppression of alcoholic drinks, he obtained the cessation of the tremor at the end of a few weeks. The accidents reappeared on the return of the patients to the work-shops.

MALIGNITY AND SECONDARY INFECTION OF SCARLATINA.—E. DAMAIN.

In scarlatina, an explanation of malignity is found in the union of four factors: soil for, virulence of, quantity of, and openness to, the microbic infection. The complications, in this disease, result almost always from secondary infection. It is generally conceded that the micro-organism of these infections is usually the streptococcus. So that the two prophylactic means of real efficacy are isolation and antiseptis.

It would therefore seem to be necessary, in private practice, that the antiseptic measures adopted in hospitals should be put to use likewise, as they have much reduced mortality in scarlatina. In family practice, the absolute necessity of general antiseptis and of the special antiseptis of the mouth, throat, and nose should be insisted-upon; and the family should be convinced of the extremely important part which they play as regards both the patient and the people about him.

The best therapeutics, in cases of hyperthermic scarlatina, is still that of cold baths.

After recovery, the scarlatina patient should be allowed to resume his regular associations only with the greatest caution. Lastly, it is necessary to disinfect, as completely as possible, the rooms that have been occupied by a scarlatina patient.

MYXOMA.—A. CHEVALIER.

Mucous tissue exists as a distinct form, permanent or transitory, of connective tissue,—just as cartilaginous tissue does. There occur tumors formed of mucous tissue: they are the Myxomas. They present very different histological and clinical characteristics, according to the positions they occupy. But these characteristics may all be subdivided into three classes:

1.—The Myxoma is composed of a full grown mucous tissue or one with a tendency to become so. It then has its seat in the breast, the nasal cavities, or the bones. It does not spread; and, after complete ablation, does not reappear.

2.—The tissue constituting the Myxoma is mucous and embryonal or has a tendency to become so. It has its seat in the muscles, the aponeuroses, the sheathes of the tendons, the muscular interstices, or the sheathes of the blood-vessels. It reappears after ablation, and often spreads.

3.—The myxomatous tissue merely plays the part of frame-work in a complex tumor, having its seat in the salivary glands or the testicles,—organs in which it is very rare to see a true Myxoma develop itself. The progress of the tumor is variable, according to the predominance of the connective or the epithelial element.

The prognosis and treatment differ according to the nature of the variety diagnosed. Full-grown myxomas or fibro-myxomas, of the first variety, are benign tumors. Complete ablation puts aside all possibility of their reappearance in the same locality. The myxomas of the second variety constitute a class of malignant tumors. As soon as they are well diagnosed, it is necessary to intervene surgically, and not

to hesitate to sacrifice the member where the tumor is located. In the myxomas of the third category, the malignity of the tumor varies according to the character of its basis, but it may be said that ablation should be practiced at once and as completely as possible.

For Myxomas of the nerves and nervous centres, a special category must be reserved. A nerve myxoma composed of full-grown mucous tissue is not, properly speaking a malignant tumor, and does not spread to the viscera. These tumors are liable to multiply; they may appear in numbers on the nerve-trunks. In the nervous centres, the myxoma may provoke complications of extreme gravity.

SPONTANEOUS HÆMORRHAGE OF THE EYE IN ADOLESCENTS.—D. GONTARD.

In adolescents, as in adults, these spontaneous hæmorrhages have various origins. They are immediately due to hypertension of the blood. This increase in the tension of the blood is due to an obstacle in the peripheral circulation and to an exaggeration of cardiac energy. The hypertension of the blood may coincide with dyspepsia and dilation of the stomach, essential hypertrophy in the growth of the heart, anæmia, puberty, and menstruation.

The prognosis is most serious. Visual power is lost, and the affection has a great tendency to become bilateral. Once the two eyes are attacked, total blindness is the result of the hæmorrhage. Local treatment is generally powerless; the therapy should be especially directed against the causal affection.

IMPETIGO AND SOME OF ITS LOCALIZATIONS IN CHILDREN.—G. A. DUPREY.

Impetigo is a contagious and inoculable disease, which results from the superficial inoculation of pathogenous schizophytes of the species *staphylococcus*. Frequently, and through the influences of divers causes, children who are subject to the ordinary Impetigo, are attacked with multiple suppurative manifestations: abscesses, dactylites, suppuration of the mucous membranes. By the clinical study of these

facts, and by the succession of accidents, one is led to consider these multiple suppurations as being of the same nature as Impetigo. Young age is, so to speak, an efficient cause; the small resistance of the tissues and the delicate skin of the child are the cause of the frequency of the malady in young children. It is most often the children of the poor, badly nourished and unclean, who are attacked. Poorly dressed blisters are also indicated as a cause, also pruriginous, rubeolic, scrofulous, and lymphatic affections. Localizations in the eyes are of frequent occurrence, also affections of the nose and ears; stomatitis, coryza, and bronchitis. The treatment should be both topical and general, but special attention must be given to prophylaxis. Contagion occurs frequently in schools and in large families of uncleanly habits.

PREVENTIVE HÆMOSTASIS IN SURGICAL OPERATIONS.—L. AUDAIN.

Preventive hæmostasis, has for its object the prevention of the flow of blood in such tissues as are to be operated-upon with the surgeon's knife. The methods of pre-operative hæmostasis are numerous, but many are no longer in use and have merely a historical value. The ones most employed at present are: the driving back of the blood and compression of the tissues by means of the Esmarch bandage; preventive ligature of the vessels at the seat of the operation; ligature of the bases of tumors with rubber bands or metallic fastenings.

These methods should be *partially* retained. They are often impracticable or insufficient. The preventive hæmostasis by pinching the blood vessels (PÉAN's method) alone constitutes a *general* method, to which the operator can always have recourse. Preventive pinching can be properly done only by the intelligent application of hæmostatic pincers, which the author describes. Their application is easy, rapid, and inoffensive. The skin, muscles, and nerves may be pinched without ill results, on condition that the compression be moderate. The application of preventive compression has

very few counter indications, except in cases where the organs are of very delicate texture. PÉAN absolutely disapproves of its use, for instance, in the intestines.

According to the peculiarities of the situation, preventive hæmostasis is simple, composite, or combined with other methods; total from the start, or progressive; temporarily preventive or definitely preventive. Whence, the possibility of the creation of a certain number of principal types, justified by the examples of numerous operations which the author cites. He also establishes the fact that the method of division, combined with the treatment by means of hæmostatic compression, gives, from the point of view of surgical practice the best results.

SALICYLIC MEDICATION IN THE TREATMENT OF SEROUS PLEURISY.—G. BILLARD.

Salicylate of soda does not act only upon articular inflammation, in diseases such as acute rheumatism. Since it has come into use, the complications in the direction of the visceral serous membranes have become less frequent and less serious. It is because it is stopped in its progress on the third day, that rheumatism has not time to seriously attack the pleura, the pericardium, and the meninges. The influence of the remedy does not stop at this indiscutable preservative action. When phlegmasia develops on the serous membrane, salicylic preparations, far from being counter-indicated, become a means of treatment whose efficacy is certain.

It has even been found possible to generalize this curative action; for salicylates, as a rule, give excellent results in the treatment of pleuritic effusions of all kinds, whose absorption they effect more rapidly than any other medication. It is a therapeutic quality which seems to have an effect, not after the manner of derivative remedies, by a diuresis or by a perspiration which the administering of the medicine may cause, but in a *direct* way. The author thinks that salicylate of soda, whose presence is discovered in the exudation, acts locally on the

inflamed serous membrane, and perhaps, or probably, on the infecting agent itself, by rendering the surroundings incompatible with its existence.

The author maintains that salicylates, employed in sufficient doses, and except in cases where there is counter-indication, constitute the most reliable and effective medication, not only for pleurisies of rheumatic origin, but in *all* cases of serous effusion of the pleura; against which—except by puncture—the physician finds himself nearly helpless.

However, in his opinion, thoracentesis will always remain the most reliable treatment of all.

CHOREA OF PREGNANCY.—R. RICHE.

This is a rare malady, which, as a general rule, begins with the first months of pregnancy and ends a few days after delivery—unless recovery supervene spontaneously at a time still somewhat more or less remote from the expected parturition. The causes invoked by most authors are very rarely met-with, and it must be admitted that pregnancy, by itself, is enough to cause the apparition of chorea. Its ætiology might be explained by admitting that it is a reflect neurose, whose point of departure is the irritation of the utero-ovarian plexus. The gravity of the prognose of the chorea of pregnancy has also been much exaggerated, as well regarding the mother as also the child.

The best treatment is by the use of *chloral hydrate in large doses*; but it must be administered so as to keep up a *continued* state of slumber. It is well-known that OULMONT has employed hyoscyamine with success. In light cases, iodide and bromide of potassium have given good results. Opium and morphine have also been found useful.

When all medication proved useless, abortion has been tried. In certain cases, the malady was checked by this means; in others, the disease has continued, and even death has supervened; as has also been the case, several times, after spontaneous miscarriage. Happily, the use of chloral hydrate dispenses usually with the necessity of such extreme measures.

CONTRIBUTION TO THE STUDY OF PRIMARY RETRO-LARYNGEAL ABSCESES.—
Dr. M. MANDELSTAMM.

Primary retro-laryngeal abscesses and phlegmons are generally located in the lateral grooves of the larynx and in the aryteno-epiglottic folds. It is principally a disease of adults, which makes its appearance in perfect health, more often in men than in women. Cold, alone, does not suffice to explain its pathogenesis; according to the author, it is necessary to admit, besides, the microbic origin of the malady. Aside from some serious cases in which the affection assumes the form of an infectious disease, there are benign cases that develop locally and without notable general phenomena.

The prognosis is not necessarily fatal; cure takes place in most of the benign cases—those of local evolution. The treatment should consist in the use of antiphlogistics and of antiseptics. The differential diagnosis should be made especially from retro-pharyngeal abscess, croup, and primary erysipelas of the larynx.

In the grave cases, death often supervenes suddenly, at a moment when least expected, and even after tracheotomy has been performed. Asphyxia alone, in these cases, does not suffice to explain sudden death, and it is very probable that the patient succumbs to a paralysis of the heart.

MUCOUS POLYPI OF THE NASAL FOSSÆ IN CHILDREN.—Dr. NATIER.

In the new-born, mucous polypi of the nasal fossæ are of very rare occurrence; they become more frequent with the advance in age. Their ætiology is uncertain; chronic inflammation of the pituitary membrane is especially cited as a cause. The symptoms are objective and subjective; the former are revealed by direct examination of the parts; the second, by disturbances of respiration, of the voice, of deglutition, etc. To recognize these polypi, the best means is rhinoscopy anterior and posterior. There is an advantage in retracting the soft palate, principally with the aid of thin rubber

bands, introduced into the nasal fossæ and fastened in front of the upper lip. These polypi must not be confounded with hypertrophy of the turbinate bones, deviations of the nasal septum, foreign bodies in the nasal fossæ, abscess of the septum, malignant tumors, adenoid vegetations, or naso-pharyngeal polypi. The course of the affection is slow but continuous. Except in the case of its having a very slender pedicle which might be broken under the influence of certain efforts, spontaneous disappearance is unknown. There are polypi which form cystic cavities; but it has not been proved that they become transformed into malignant tumors. Consequently, the prognosis of this affection is not generally very grave, except, of course, when complications suddenly supervene. Many treatments have been proposed. There is to be retained but the cold loop and the galvanic loop, which are alone applicable in certain cases.

A CASE OF CONGENITAL ERYSIPELAS.—Dr. E. VIALLE.

An infant, four hours old, had an erysipelas of the scrotum, thigh, abdomen, and cheek, with marginal swelling and pain on pressure. It was not the ordinary erysipelas of the newly born, having had, for its point of departure, the umbilicus. The mother had had no sickness during her pregnancy, she had shown no signs of erysipelas and had not had leucorrhœa or any other discharges. The disease healed in a few days, with desquamation. The infant had therefore been attacked by the disease in its mother's womb, probably a few days before birth; for erysipelas, even in a new-born babe, could not spread over so much space in four hours' time. It was affirmed that the child had this erysipelas already at the very moment of its birth. In this case, the author asks himself: "What becomes of the microbic theory of erysipelas?" The disease did not exist in any of the persons around the mother. The woman had had no vaginitis; it is, therefore, not owing to the passage of the child through the vagina that the microbe was able to introduce itself

and develop instantaneously. If there is a medium essentially aseptic, it is certainly that in which a child finds itself before birth;—the membranes bursting only about half an hour before the expulsion of the foetus. And yet, according to this case, “it is incontestable that

erysipelas may develop in infants before birth, and aside from all contamination by the mother or by the outer air.” Then, once more, says the author, “What becomes, in this case, of the microbic theory of erysipelas, accepted to-day by all?”

RATIONAL DIETETICS:

STUDIES FOR “MERCK’S BULLETIN.”

FOOD VALUES.

VI.

PHYSICAL DERIVATIVES OF MILK.

Upon the basis of the well-known average percentage compositions of human and of cows’ milk, we have defined and determined exactly the digestive possibilities of these two classes of milk in their natural state, as drawn from the breast in the one case and from the udder in the other. And having found that the ordinary commercial milk largely varies in its qualities, and differs more or less from the two former fluids, we saw that the milk of the market has good reasons for being less digestible than the unchanged natural product.

The various derivatives of milk, however, can be separately and much more definitely investigated than the ordinary market milk in its varying characters. Their percentage compositions and digestive possibilities can be made equally plain and certain, as has been done for the normal milks.

First, the most natural and slightest derivation from the normal standard will be considered; this is the ordinary

SKIMMED MILK.

This refers to a milk which has not been chilled for transportation, but which has been allowed to stand in shallow dishes, undisturbed, until its fat-globules have had time to rise to the top of the fluid and become massed together in a thick layer known as “cream.”

This surface coating is made somewhat tenacious and coherent, by the fat-globules being surrounded and bound together by an

albuminous liquid derived from the proteid constituents of the milk. As a result of this change, in a few hours this surface-coating of cream can be easily and completely separated from the underlying and more fluid portion of the milk.

This latter, then, is what is commonly known as *skimmed milk*,—a milk-derivative which is largely deficient in fat, as compared with ordinary milk, but in which the proteid, saccharine, and mineral constituents differ but little in percentage amount from the milk from which it is obtained.

The

COMPOSITION OF SKIMMED MILK,

as given in our original table on page 96 of MERCK’S BULLETIN, is as follows: for every 100 parts:—88.00 parts of water; 4.00 of proteid elements; 1.80 of fat; 5.40 of saccharine matter, and 0.80 parts of mineral compounds.

Therefore, to secure the 130 grammes (4.19 ounces) of proteid materials required to sustain the normal daily constructive work of the animal organism, it is necessary to take into the system every twenty-four hours 3,265 grammes (105 ounces) of skimmed milk.

This will furnish to the body 2,886 grammes (92.79 ounces) of water; 130 grammes (4.19 ounces) of proteid elements; 58 grammes (1.98 ounces) of fat; 164 grammes (5.29 ounces) of milk-sugar; and 26 grammes (0.84 ounces) of the mineral salts.

By these figures it is clearly seen that the fat is not entirely eliminated from the skimmed milk. It is also noticeable that the quantity of

milk-sugar is slightly in excess of the amount contained in natural milk.

OXYGEN USED.

Applying, now, the same rules for computation that have been used in all the other estimates of the food-stuffs investigated in this series,—it is found necessary to expend only 25.911 oxygen units to completely transmute all the proximate principles found in the above cited 3,265 grammes (105 ounces) of skimmed milk. This quantity of oxygen will completely oxidize all the elements into their perfect and final products for elimination, by the glandular organs, from the system.

It will be noticed, in this instance, as with all the food-stuffs previously computed, that *the same standard quantity* of the proteid elements was made the basis of the daily intake of the respective foods, irrespective of the other constituents; the quantity of fat and milk-sugar involved depending on what their percentage chances to be, as toward the normal amount of the albuminous constructive material.

The object in doing this, is, to secure in every case the same quantity and quality in the nitrogenous excrementitious material to be eliminated from the system, and at the same time to develop the same amount of nutrition and to have an equal strain placed upon the excretory organs; thus enabling a more uniform and just comparison to be made regarding the true values of the various food-stuffs contrasted.

HEAT AND ENERGY EVOLVED.

Computing the heat-producing power of the proximate elements contained in the skimmed milk by the same laws as were applied to the other food-stuffs,—it is found that the total quantity of heat, or energy, or mechanical work, that can be developed out of the ingestion and complete oxidation of these 3,265 grammes (105 ounces) of skimmed milk is only 506,554 kilogramme-metres (3,663,554 foot-pounds).

This is a very small yield of heat and energy when compared with most of the other food-stuffs thus far computed. Yet the constructive supply of proteid material furnished to the system is fully up to the normal standard, and

the oxidation of all the contained elements has been completely and perfectly performed.

This small yield of heat and energy is also in perfect harmony with the small quantity of oxygen expended in producing this complete oxidation.

UTILITY OF ALCOHOL IN SUCH CASES.

It is unquestionably in just such instances as these, that, as a result of this small yield of energy, the symptoms of marked depression and extreme exhaustion and faintness frequently occur and become a prominent and often dangerous symptom. It is in these instances, also, that, by virtue of the surplus of unconsumed oxygen, small and frequent doses of alcoholic stimulants can be quickly and completely oxidized; thus furnishing to the system at once a volume of heat and energy, without first compelling an expenditure of digestive energy to make the substance used available. This naturally stimulates and innervates the whole system without loss of vital energy, and explains how *alcohol* often carries a depressed and sinking system over many danger points, and thus saves life, when, without its use, death must inevitably have been the result.

HARMFULNESS OF ALCOHOL IN OTHER CASES.

When the system is in possession of full digestive power, and can therefore produce the requisite amount of heat and energy and constructive work, by utilizing all the available oxygen through a well selected diet,—then alcohol, by its power to attract oxygen *away from* the natural food-stuffs, and producing a sudden ebullition of heat and spasmodic and irregular periods of stimulation and innervation, becomes an element of danger to the animal economy. It prevents normal oxidation and assimilation, develops suboxidation of the proteid compounds, followed by disease,—not by the action of the alcohol *per se*, but through its secondary effect; viz., suboxidation of the proteid elements.

Alcohol taken after excessive mental and physical work, when the system is already in a state of suboxidation, still further exhausts the oxygen supply, and renders the condition abso-

lutely worse. The sudden development of heat and energy by the oxidation of the dose of alcohol taken, increases the innervation of the system, which, together with the anæsthetic or benumbed condition consequent upon the sub-oxidation of the proteids and the development of toxic principles, deludes the partaker with the idea that more work can be accomplished. But the never-failing clinical history is one of ultimate disappointment.

SKIMMED MILK AS A SICK-DIET.

By intelligently appreciating these facts, and determining the true condition, knowledge is possessed by which alcoholic stimulants can in one class of cases be recommended with profit and advantage, and the system can be equally well guarded against their ill effects in cases of an opposite nature.

It should be remembered that when skimmed milk is largely used as a diet, it is usually in cases of disease rather than health. Under these circumstances there is ordinarily a condition of semi-quietude, both mental and physical, so that the loss of heat and energy through nervous and muscular activity is comparatively small.

Consequently there is not the necessity for so much heat and energy being developed. All the heat and energy that is produced can be expended in innervating the system and in perfecting the oxidation of the proteid compounds; thus forcing, as it were, the nutritive activity of the body, while the mental and physical powers are held in that semi-quiescent condition.

In case there is a *sudden demand* for more heat and energy, this can be secured by a judicious use of the alcoholic stimulants, as before stated.

In this manner diseased processes are dispersed and complete repair effected. *So soon as this is accomplished*, the diet must be adjusted to meet the changed circumstances and wants of the system, if the greatest measure of success is to be attained.

By this small outlay of oxygen, with the normal heat quantity at the same time fully

maintained, constructive metabolism in many cases can be made to recover upon this kind of diet; where all other classes of food-stuffs, on account of a—to them—defective supply of oxygen, yield only failure.

A SUPERNORMAL AMOUNT OF PROTEID

UTILIZABLE.

Again, on account of the small expenditure of oxygen in completely oxidizing the 3,265 grammes (105 ounces) of skimmed milk, there is a reserve of some fourteen thousand (14,000) oxygen units—as against the quantity of this gas normally consumed—which can be utilized in many instances in transmuting an increased quantity of food without thereby exceeding the oxygenating capacity of the system.

Consequently, *a larger amount* of skimmed milk can be ingested for a time; and still the system will be able to furnish a sufficient quantity of oxygen to prevent suboxidation of the proteid elements.

Thus, it has been found that about 4,852 grammes (156 ounces) of skimmed milk can be taken into the system during every twenty-four hours, and still the oxygenating capacity of the body will be only slightly taxed beyond what occurs when the meat diet of pure proteid and fat is used. This 4,852 grammes (156 ounces) of skimmed milk furnishes to the system 4,329 grammes (139.18 ounces) of water; 195 grammes (6.29 ounces) of proteid substance; 87 grammes (2.84 ounces) of fat; 246 grammes (7.93 ounces) of saccharine elements (milk-sugar); and 39 grammes (1.26 ounces) of the mineral salts.

By the use of this quantity of skimmed milk, the proteid or constructive material taken-in is increased by one-half, and the heat-producing power brought up to a little above the normal standard. This assertion is fully sustained by applying the same rules for computation as have been followed in estimating the other food-stuffs. For it is found that, to completely oxidize the constituent proximate elements contained in 4,852 grammes (156 ounces) of skimmed milk requires the expenditure of 38,867 oxygen units; while, to oxidize 260

grammes (9.38 ounces) of meat, 38,415 oxygen units are needed;—showing a difference of only 452 oxygen units.

The total yield of heat and energy, or the mechanical working power, developed, is equal to 759,831 kilogramme-metres (5,495,857 foot-pounds). This also is a trifle in excess of what was attained with the meat diet,—the increase being about proportional to the larger amount of oxygen used.

With this increased ingestion of skimmed milk, the constructive nutrition of the body is one-half greater than upon any other diet so far here investigated; and still the expenditure of oxygen is kept within the limits of the oxygenating capacity of the system.

A similar result was previously seen to be obtainable with a bean diet; but the expenditure of oxygen was some five or six thousand units in excess of what is required upon this augmented skimmed-milk diet,—thus greatly exceeding the oxygenating capacity of the system, and at once producing sub-oxidation.

NO DRAWBACK, WHEN DIGESTIVE POWERS ARE
NORMAL.

The only disadvantage which follows from this increased quantity of skimmed milk ingested, is the fact that the nitrogenous excrementitious material to be eliminated from the system is constantly one-half greater than the normal standard. This naturally keeps the excretory organs constantly overworked; but, as the products are of normal composition, the strain is not so great as it is when they are both excessive in quantity and abnormal in character.

The increased quantity of nitrogenous elements to be eliminated, so long as the oxidation processes are perfectly effected and the patient is in the semi-quiescent condition, appears to cause no material change to the system. On the contrary, for a time the excretory organs have less work to do, because the conditions in which this diet is useful are *those of suboxidation*, in which an abundance of abnormal, unusual products of oxidation, recognizable as such in the urine, previously exists

in the system. *The change from the abnormal to normal* excrementitious products, although the quantity become somewhat excessive, relieves the excretory work of the glandular organs, and enables them to take up more nutrition.

In this way the system is empowered to disperse many pathological and diseased processes and bring about a normal or healthy nutritive state of the system.

OVER-NUTRITION MUST BE STOPPED WHEN
NORMAL CONDITIONS ARE REGAINED.

After a normal condition has been fully established and the system again begins to expend energy both in mental and physical activity, the diet must be cut down and rearranged, so as to furnish the normal heat and energy *without* this augmentation of proteid supply; and so as—consequently—not to overtax the eliminating organs unnecessarily,—thus simply giving them their ordinary work to perform.

As soon as the normal state has been re-established, a continuance of the forced nutrition, with a simultaneously increasing expenditure of energy through the nervous and muscular system, by the restoration of the regular exertions of healthy life, can result in only one thing: the redevelopment of a suboxidation condition. This, as a natural sequence, is soon followed by the development, again, of pathological processes in place of the normal state; and disease is thus again instituted.

In this manner the curative agent, if persistently used beyond a certain point, may at once become an element of danger.

IMPORTANCE OF SCIENTIFIC DIETARY REGULATION.

Therefore, in the treatment of all classes of cases, great skill and judgment are required in the regulation of the diet; both as regards determining both the occasion for using, and the composition and digestive possibilities of, the food-stuffs to be employed. This holds equally true in health as in disease, if the most satisfactory results are to be obtained at all times and under all circumstances.

RELATIVE CO₂ AND H₂O PRODUCTION.

Comparing the amounts of carbon di-oxide and of water produced from the use of the *normal* quantity of 3,265 grammes (105 ounces) of skimmed milk, on the one hand, with the meat diet on the other, it is found that the former yields only 11,324 units of carbon di-oxide, while the meat furnishes 14,300 carbon di-oxide units. The former yields only 8,969 units of water, while the meat furnishes 11,765.

This discrepancy in the manufacture of water would be objectionable, were it not for the fact that a much larger percentage of water is taken in the skimmed-milk diet than with meat. Indeed,—even though the actual production of water from a meat diet is comparatively large, *free water* must actually be taken with a meat diet, in order to establish perfect assimilation.

When the increased, or supernormal, quantity (4,852 grammes=156 ounces) of skimmed milk is used, the production of carbon di-oxide and water is greater than from either the normal skimmed-milk or the meat diet;—yielding 16,986 carbon di-oxide units, to 14,300 from the meat diet. The augmented skimmed-milk diet yields, also, 13,458 units of water, to 11,645 from the animal diet of pure proteid and fat.

SKIMMED MILK A DIURETIC.

This shows clearly that the skimmed milk, when taken in supernormal quantities, can be regarded as a diuretic from two points,—the large amount of water ingested in the milk itself, and the large manufacture of water within the system through the oxidation of its proteid, saccharine, and fat constituents.

CREAM AS A "FOOD."

The question is often raised: "What is the true value of cream? Can it be diluted or combined in any way so that it can serve as a valuable substitute for milk?"

If the percentage composition of cream, which is given by some writers, be taken as a standard, these questions are at once easily and fully answerable.

The composition of 100 parts is given as

follows: 66.00 parts water; 2.70 parts of proteid; 26.70 parts fat; 2.80 parts sugar, and 1.80 of mineral salts.

With this percentage composition, by taking 4,821 grammes (155 ounces) of cream daily, the system could secure the required 130 grammes (4.19 ounces) of proteid substance necessary to sustain the constructive nutrition of the body.

The quantity to be ingested would be no greater than is often required when using a milk or skimmed-milk diet.

The "richness" of the cream, however, might make it very difficult for many—and especially when sick, or suffering from an irritated stomach—even to *take* so large a quantity.

ASSIMILATION OF A PURE CREAM DIET
IMPOSSIBLE.

Computing cream in the same way that the other food-stuffs have here been treated,—it is found that the yield of heat and energy is something enormous. That is, assuming that the nutriment is all absorbed and utilized by the system.

If the whole of the 4,821 grammes (155 ounces) of cream were absorbed and oxidized, the heat or mechanical power produced would be 5,218,731 kilogramme-metres (37,474,081 foot-pounds).

To obtain this result would necessitate the expenditure of 210,117 oxygen units. This, in face of the fact that something less than 40,000 oxygen units appears to be the maximum oxygenating capacity of the animal economy, becomes at once an absolute impossibility; and we see at a glance the absurdity of making any such assumption.

THE EXCESS OF FAT ACTS CATHARTICALLY.

If it be granted that only 130 grammes or (4.19 ounces) of fat is about the average amount of fat that can be emulsified and absorbed daily,—which is probably true,—there would be left 1,157 grammes (37.19 ounces) of fat in the alimentary tract, to be disposed-of in some other manner.

As the most natural mode of disappearance for an excess of fat would be, to run off with

the fæces, this is presumably the mode of escape. Clinical experience shows this to be true; for, in all instances in which an excess of cream, or, in fact, fat of any kind, is taken in excess, a laxative or cathartic action is at once established.

A PURE CREAM DIET MUST BE INELIGIBLE.

Assuming that the excess of fat pass out through the alimentary canal with the fæces, and that the requisite quantity of proteid, fat, and saccharine substances be absorbed, it would require 40,047 oxygen units to completely oxidize the 130 grammes (4.19 ounces) each of the proteid and fat, and the 136 grammes (4.39 ounces) of milk-sugar, which remain.

If this were possible, then the yield of heat and energy or mechanical work would be 774,694 grammes (5,603,361 foot-pounds), or about what is estimated to be the natural daily expenditure of the system.

Even under these favorable circumstances the outlay of oxygen would be excessive, which would tend to bring on a suboxidation stage in the proteid metabolism.

Owing, however, to the laxative or even cathartic nature of this large amount of fat, it becomes impossible to use cream to any advantage as a *single* article of diet, as can be done with many other kinds of food-stuffs.

Here, again, our chemical and physiological knowledge proves conclusively the truth of a long-since observed and clinically recorded law; to wit,—that cream cannot be made to serve as a valuable *substitute* for milk.

It also establishes as a practical rule, that the attempt to introduce into the animal economy an abnormal quantity of fat in a limited time results in dangers to the system rather than in good.

USEFULNESS OF CREAM AS A MERE ADDITION.

By this study of the possibilities of cream, it becomes clear that, during the stage of *convalescence*, when an increase in the heat-and-energy-production is required during a part of the day, the *addition* of some cream to the

skimmed-milk or even to the milk diet will often be found a valuable adjunct.

PRACTICAL DEDUCTIONS.

By thus fully appreciating the composition and digestive possibilities of various forms of diet, and clearly understanding the amount of work that can be developed out of their use, the patient can be intelligently directed in the choice of diet.

Then, by fully diagnosing the exact nutritive state of the system, the requirements of the abnormal state of the physiological economy can be most perfectly met. In many instances the wants of the system can be successfully *anticipated*,—thus keeping ahead, instead of following along behind the clinical symptoms.

In the one instance the physician is constantly *in advance* of the pathological processes, often modifying their extension or totally arresting their progress. In the other, the symptoms of the fully developed pathological condition is all that can be treated. In the former instance, dieting and well-directed medication will often produce brilliant results; while, in the other, little or nothing will be accomplished.

FILTRATION OF DRINKING-WATER.

By H. BAILLON, M.D.

The French Minister of War, M. DE FREYCINET, has had published a report on the measures which were found necessary to diminish the frequency of typhoid fever in the army.

The results are shown by the following figures:

In 1867 there were	6,881 cases.
" 1889 " "	4,412 "
" 1890 " "	3,491 "

There were 864 deaths in 1867; there were but 534 in 1890.

This amelioration, insufficient as it is, and with which I hope the authorities will not be satisfied, is due to the hygienic precautions which have been adopted. The water has been filtered with better filters than were formerly used, and the filters themselves have been provided with a cleaner.

What I have declared before, in 1870, during the dreadful siege of Paris, ought to be made known in every country; to wit,—that, outside of exceptional cases which I will not touch upon just now, *typhoid fever is contracted simply because we drink water that comes from our sewers!* An assertion so positive would have caused a smile forty years ago, when nothing, as it were, was known of the ætiology of this disease.

As soon as an army drinks pure spring water, it will not have typhoid fever. In Paris, as soon as the use of the river (Seine) water was substituted for spring water, typhoid fever

had, of necessity, to increase. What amelioration has been had ought not to stop at the use of the filters now in vogue; they are insufficient, and will certainly be improved-upon; and certainly, likewise, will the number of cases of typhoid fever diminish still further. In the first place, it must not be thought that the most renowned filters of the day stop the passage of schizophytes; but they do let very few pass, and this is a good deal gained. Still, they allow *certain liquid substances* to pass, whose undesirable qualities are amply demonstrated by the very presence of those schizophytes before the filtration.

CLINICAL PAPERS

ON LIVE TOPICS.

PHARYNGEAL HÆMORRHAGES.

By L. JUMON, M. D., Paris.

Pharyngeal hæmorrhage, though quite rare, is sufficiently frequent to be taken into account in the differential diagnosis between it and hæmoptysis or hæmatemesis. It is sometimes very difficult to find the source of the bleeding in a patient declaring that he has spit up blood; here the anamnesis often is of little value, and the subjects exposed to pharyngeal hæmorrhages become rather unfavorably impressed with the erroneous idea that the blood comes from the lungs. The question of diagnosis ought then to be resolved after patient researches; still it will often remain undecided with the physician.

CAUSATION.

The causes of pharyngeal hæmorrhage are most varied; they are both local and general. These hæmorrhages are very frequent in the *constitutional diseases* which dispose to that accident in general, such as purpura hæmorrhagica; they are often observed also in leucæmia; they may supervene in the infectious diseases, in the course of ulcerative endocarditis, or typhoid fever. The diseases which easily determine epistaxis also provoke pharyngeal hæmorrhage. Thus, hepatic affections—principally hyper-

trophic cirrhosis—are among the most common causes; to these might be added atrophic interstitial nephritis—in consequence of the cardio-vascular lesions which accompany it, and all the cardiac affections which induce venous stasis. Whooping-cough also maintains a localized congestion in the pharynx, which favors hæmorrhage under the influence of the accidental causes leading to rupture of the vessels. In all these cases, the naso-pharyngeal mucous membrane is turgid, gorged with blood, and a slight paroxysm of cough or an effort at blowing one's nose, will suffice to suddenly produce that rupture.

If no general causes or local change can be found, the accident may be ascribed to the traumatism or to the effort elicited from the previous history. In a case observed by ROSEN-BACH, the patient was a robust individual of twenty-seven years, who, in making a violent effort to push a heavily laden wagon, suddenly discharged some blood by the mouth. During the first two or three hours, he spat up blood several times every minute; after that the hæmoptysis became rarer and took place only once or twice in five minutes. Nevertheless, the general condition remained excellent, and the patient resumed his work. The examina-

tion of the throat revealed the source of hæmorrhage, which arose in the middle of the left tonsil and in the superior angle between the two pillars of the soft palate. The blood flowed uninterruptedly, and preserved its clear red color. After submitting the region to the action of cocaine, ROSENTHAL recognized the existence of a second hæmorrhagic point on the anterior part of the posterior pillar, consisting of a superficial fissure of the mucous membrane five millimetres long. The hæmorrhage was soon arrested by compression of the bleeding points, made by means of cotton saturated with solution of iron per-chloride. The hæmorrhage returned, but only to a slight extent, when the patient got home; it was arrested with ice after fourteen hours. The author of the observation found no cause for this hæmorrhage: examination showed that the kidneys, the lungs and the heart were sound; while there was, aside from the hæmorrhagic foci, no pharyngeal lesion. The accident was ascribed to a mechanical action provoked by the congestion of the head under the influence of a violent effort. To the causes pointed out by ROSENTHAL, there must obviously be added affections of the liver, hæmophilia, and certain general diseases.

TREITEL claims, for example, that pharyngeal hæmorrhages may be observed in the gouty; he cites, in support of his view, a case of that accident which he had occasion to observe in a gouty subject. The patient had several times coughed up blood, and yet that bloody cough had not been associated with any pulmonary signs, so that TREITEL was led to suspect the pharynx. Examination of that region showed but slight lesions, consisting in yellow patches, of which some had given rise to the hæmorrhage. These patches were due, according to the author, to a uratic infiltration. Be it as it may, it will be good to carefully examine the pharynx in persons presenting hæmoptyses called arthritic, which have been specially pointed out by some authors for their relative benignity. Perhaps to that circumstance is due, in part, the benignity.

After all the general or organic affections

which may predispose to pharyngeal hæmorrhage, local lesions of the pharynx occupy the first place among the causes of that accident. Chronic pharyngitis, which is accompanied by the formation of naso-pharyngeal crusts, and which torments the patient by a painful sensation in the throat, gives rise only to feeble hæmorrhages which follow the detachment of large glomeruli of concrete muco-pus. It may happen that the patients themselves try to detach these crusts by passing the finger behind the soft palate. Chronic pharyngitis is rarely the cause of a serious hæmorrhage.

It is not so with pharyngeal affections in which *varicose dilatation of the veins* sets in. In 1887, BIMOC and LAPEYRE described a submucous venous plexus, which is constantly present in the lower part of the pharynx. It is not rare to observe far-developed varicosities in the inferior and lateral portions of the pharynx. These varicosities spread to the base of the tongue and to the regions adjoining the pharynx. They are seen with the laryngoscope as thick blue veins, studded here and there with nodosities. Sometimes they acquire a very large size.

These varices are determined by all the affections which impede the return circulation of the pharynx; but they may also be observed without any well-defined cause. Their seat is just as much subject to variation. In one case, SCHEINMANN saw the varicose dilations assume an excessive development on the tonsil even; at the same time, there were some varices at the base of the tongue. Furthermore, there was found on the tonsils and the base of the tongue a lesion much more rare than phlebotaxis and consisting in small irregular elevations of the size of a lentil or even larger. These patches were of variable color,—some red, some brown or pale,—and as a rule passed a little beyond the surface. They appeared to be formed chiefly of blood-vessels; for they bled upon being but gently rubbed. The patient was very anxious about his health, and believed he was phthisical because of the sanguinolent expectoration or rather sputation with which he had been troubled for some time. Still, it was diffi-

cult to immediately affirm the pharyngeal localization of the hæmorrhage; for, since several weeks, the patient had had paroxysms of cough and of expectoration. Yet these hæmorrhages, presumed to be pharyngeal, were in all probability such; for the examination of the lungs and of the sputa was absolutely negative. The probable diagnosis became positively certain on the day when SCHEINMANN, while making a laryngoscopic examination, saw one of these small prominences at the base of the tongue suddenly give rise to a hæmorrhage.

In this case the small elevations were probably angiomatous or cavernous tumors, such as are observed in all regions of the pharynx, either in the very thickness of the mucous membrane, or beneath the same. When they are superficial they present a very manifest blue coloration. To the touch they feel soft, and are easily compressed. They are considerably diminished in size by electro-puncture or galvano-cautery; it has also been recommended to make injections of iron per-chloride into their interior.

KATZENSTEIN observed (at BAGINSKY's clinic) some pharyngeal hæmorrhages which had no other origin than the existence of angiomatous tumors in the pharynx. In one case he saw one of these tumors develop in the lateral wall of the pharynx; from it numerous varicose veins extended all over the pharynx. The tumor had given rise to very considerable hæmorrhages. The latter symptom may be formidable when the tumors are operated-on. VOLTOLINI, by operating on a fibroma of the naso-pharyngeal vault, came near losing his patient in consequence of a hæmorrhage coming from non-contractile vessels situated in the thickness of the dense tissue of the tumor.

Occasionally, grave hæmorrhage occurs because the operator is not forewarned against that accident. STOCKL, for example, believing to have a retro-pharyngeal abscess to deal with, punctured the protuberance, which was an angioma and which caused an obstinate hæmorrhage.

Papillomata and cancer rarely give rise to

hæmorrhages in the beginning of their development; later-on, if that complication occurs, the diagnosis presents no difficulty if a local examination be made.

Pharyngeal hæmorrhages occur either on the free surface of the mucous membrane or in its thickness. In the former case, the blood effused into the naso-pharyngeal cavity is discharged through the nose, but more often through the mouth. When it flows in large quantity, it might, by its contact with the laryngeal mucous membrane, determine paroxysms of cough; this renders confusion with hæmoptysis quite easy at first sight, so much the more as the penetration of the blood into the larynx gives rise to symptoms of suffocation.

Under other circumstances the hæmorrhage takes place within the mucous membrane; there result ecchymoses or even sanguineous collections representing true hæmatomata, of which the gravity depends solely on the consequentialness of the effusion. Retro-pharyngeal hæmatomata when seated in the lower part of the pharynx, often bring-on a more or less disagreeable dysphagia, and sometimes serious disturbances of respiration. B. FRAENKEL and OHRTMANN have observed a hæmatoma of the posterior wall and inferior portion of the pharynx, in a woman aged 50 years. The tumor filled nearly the entire pharyngeal canal; it almost completely prevented deglutition, and provoked a quite intense wheezing. It appeared to be produced without any appreciable cause, and healed after two incisions. Hæmatomata present themselves in the form of fluctuating tumefactions, the nature of which is sufficiently indicated by the bluish coloration. However, according to FRAENKEL, it is not always so. It may happen that we think we are dealing with an abscess, and it is only after having made an incision that we recognize the true nature of the tumor by the presence of the abundant hæmorrhage. The blood flows from the tumor in the form of a jet, as if a varix had been opened. Therefore we must always anticipate this event when confronted with a fluctuating

tumor of the pharynx, and open it first with a straight bistoury, as if we were going to make an exploratory puncture.

Finally, the blood may come from a region near the pharynx. SCHAEFFER has published a case of pharyngeal hæmorrhage caused by the presence in the antrum of Highmore of a granular tumor which bled easily. The hæmorrhage ceased as soon as the cavity was freely opened from the alveolar side. The granulations were then removed with the aid of a sharp curette.

DIAGNOSIS.

The diagnosis of pharyngeal hæmorrhage presents, as is seen, certain difficulties, and if we are not forewarned, it is very easy to mistake it for hæmoptysis. Even if one's attention be directed to some pharyngeal lesion, we do not always immediately arrive at an opinion. There are some complex cases which present themselves with a concomitant bronchitis. Still the pharyngeal lesions constitute a strong presumption in favor of the pharyngeal localization of the hæmorrhage. It must not be forgotten, indeed, that the most trifling lesions—such as granulations, small adenoid tumors, etc.—may give rise to considerable hæmorrhages. In these cases, the slightest traumatism produced intentionally during the exploration, will readily determine bleeding. If we are called to examine a patient during the hæmorrhage, the diagnosis will be much more easy. In fact, there will be no such pulmonary signs as habitually accompany hæmoptysis; furthermore, if the hæmorrhage be produced in the upper or middle part of the pharynx, the direct examination of the part will at once reveal its origin.

The microscopic examination of the blood expectorated ought not to be neglected. In the case of a pharyngeal hæmorrhage the blood is almost always mixed more or less abundantly with products of secretion. In the sputum of individuals affected with dry pharyngitis, a considerable quantity of pavement epithelium is found. The presence of the latter in the sanguinolent expectoration, indicates that the blood does not come from the lungs. Adenoid

vegetations of the pharynx, even at their beginning, are always accompanied with an abundant secretion which, after thickening, lines the pharyngeal walls, and is often tinted with blood.

The diagnosis of varicous dilatations and of angiomatous tumors, can only be made by direct examination; the bluish coloration of these varicous tumors is characteristic.

Finally, in the absence of all apparent lesion, and when the microscopic examination still locates the immediate source of the hæmorrhage in the pharynx, it will be necessary to make a thorough examination of the functions in general, to find remote causes. The existence of a cardiac affection, of renal atrophy, of hepatic cirrhosis, and of chronic alcoholism, should be looked-for.

TREATMENT.

The treatment of pharyngeal hæmorrhage will consist, first, in placing the patient in the recumbent position, with his head raised; ice applications are then made; if possible, the bleeding points are touched, either with a tampon impregnated with solution of iron perchloride, or with the galvano-cautery. If the hæmorrhage takes place into the upper part of the pharynx, tamponing with iodoform cotton is resorted-to,—the tampon being left *in situ* for twenty-four hours, and then withdrawn by means of the strong thread which is attached to it.

In the majority of cases, it will suffice to apply a cotton tampon imbibed with ferric chloride solution for a few minutes. In obstinate cases, we will sometimes be compelled to resort to energetic means,—for example, compression of the carotids. The general treatment does not differ from that applied in all hæmorrhages.

SALICYLIC ACID and EXALGIN, when triturated together, *form a liquid*,—according to the statement of Dr. PARREL, of Dieppe; these medicaments should therefore not be synchronously prescribed in powders or wafers (which would necessitate their trituration).

TREATMENT OF PLEURISY.

By EDWIN RICKARDS, M. B. OXON.

[Read before the Birmingham and Midland Counties Branch of the
BRITISH MEDICAL ASSOCIATION.]

[CONCLUDED.]

LATENT PLEURISY.

While effusive pleurisy usually sets in with definite symptoms, there is a kind which has been called latent pleurisy, in which, when a patient first comes under observation, the chest is full of fluid. In such a case the pain and initial fever, not being severe, fail to attract the patient's attention to the chest, and it is only when the effusion causes dyspnoea on exertion, that medical aid is sought. Latent pleurisy is, in my opinion, very different from chronic pleurisy. The effusion in latent pleurisy will generally disappear in a few weeks if the patient be kept in bed, and by aspiration the cure may be effected in a much shorter time.

Pleuritic effusion is often found in women in the puerperal state and for months after parturition. It is readily cured by aspiration, but not infrequently two or three operations are required. I do not here refer to the pleuritic effusion which is part of puerperal fever, where the fluid is sometimes pus, and has to be treated accordingly. Pleuritic effusion in acute rheumatism is rapidly absorbed, and seldom requires artificial removal, save in bad cases, for the relief of urgent symptoms. The effusion of chronic Bright's disease is liable to return after removal; aspiration gives but temporary relief.

The effusion of early phthisis is very amenable to aspiration, but in that of advanced phthisis the advantage of operative interference is very questionable. We frequently find pleuritic effusion in persons with an hereditary tendency to phthisis, but without any physical signs of that disease in the chest. Early aspiration cures such cases rapidly and completely. Let me cite a case: A man, aged 27, of very consumptive appearance, came to me with fluid in his left chest; he had been ill three weeks; his father died of consumption; he alone remained of a family of seven, the others having died of consumption. I aspirated three pints

of fluid. Eight days after the operation, I explored the chest in several places without tapping fluid; he was practically well. I saw him six months afterwards; he was in rude health, stronger than he had been for years previous to this illness. Such a case is by no means of uncommon occurrence. As to the primary cause of pleurisy in such a case, I must confess I am at present in the dark, though the balance of probabilities seems to me to point to a crop of tubercles in the pleural membrane.

EMPHYEMA.

I shall not say much in regard to the treatment of empyema; here drugs and aspiration are powerless—pleurotomy is all-powerful. There are cases on record of recovery when the disease has been left to Nature, where the pus has remained permanently as a cheesy or calcareous mass in the pleural sac, where the pus has escaped by a self-made opening through the chest-wall or the lung. The literature on the subject contains instances of cures by aspiration, by single or repeated use of the trocar and canula; but all these are exceptional cases, and may be regarded as curiosities.

When it is known that pus is in the chest, the sooner it is let out by free incision, the more rapid, the more complete, the more certain the recovery; but besides and beyond this, early operation diminishes the risk of the lung becoming permanently inexpandible; in other words, it lessens the probability of a curable case becoming an incurable one.

Our suspicions of empyema may be raised at the onset of a pleurisy; rigors, excessive and long-continued pain, a temperature above 102° F., the association of the pleurisy with catarrhal pneumonia, or acute nephritis, or scarlet fever, or septicæmia, fluid in the chest of a young child, point to empyema. Our suspicions are crystallized into a conviction by the supervention of hectic, or perhaps more properly, of septic fever. The exploring syringe, without risk and with little discomfort to the patient, can at any moment set all our doubts at rest.

An aspiration as a preliminary to pleur-

otomy has been advocated, in view of the more gradual expansion of the lung and its partial adhesion to the chest-wall before air enters the incised chest. But one is often balked in aspiration or siphonage by the plugging of the canula by caseous coagula. If this method be adopted, I think the interval between the two operations should not exceed three days, for about that time a septic condition generally develops. I have more than once resorted to this plan when the pleural sac was very full of pus, but my experience on the matter is too small to be of any value.

PLEUROTOMY.

And now a word about pleurotomy. When I can select the spot for the operation, when the pus is not encapsuled, and when the lung is not adherent in places to the chest-wall, I make a single incision in the ninth interspace at the back, below the angle of the scapula; but before I do so I always, without exception, prove, by the exploring syringe, that there is pus at that spot: such a procedure may save wounding the lung or the diaphragm, if these should have become adherent to the chest-wall in that region. When the chest has been opened, what is wanted is some means which would permit the outflow of pus, and prevent the ingress of air into the chest, both at the time of the operation and afterwards. After the operation by the usual method, the ordinary dressings act in this way, but to a very limited extent. Recently I have adopted a plan which I will now briefly describe. As soon as the chest has been incised and the pus begins to flow, and before air begins to enter the chest, I place over the opening a piece of oil-silk, 8 inches square; this acts as a valve and allows the pus to escape from under it, and admits no air. When the flow of pus has ceased, even on coughing, I place a layer of cotton-wool over the oil-silk, and fix it with an elastic bandage. This method does not prevent the use of a drainage-tube, protected by a safety-pin.

In dressing the case the following day, a fresh piece of oil-silk may be slid under the old one. If, on the patient's coughing, there should

be no discharge from the opening or from the drainage-tube (if one be used), the patient should be urged to stop breathing, the oil-silk and drainage-tube should be quickly removed, the incision should be rapidly reopened with dressing-forceps, and the oil-silk instantaneously re-applied.

Recoveries under this plan have been rapid. I think that if air can be excluded for twelve hours after the operation, and only a limited amount enters during the dressing, and none between the dressings, there is every inducement to the lung to expand: whereas, if air goes freely in and out of the chest by the incision, as in the ordinary method, there is no encouragement to the lung to expand. If the lung cannot expand, my method and all methods are of no avail. I would here remark, that while fluid is continuously flowing out from the pleural sac, no air enters.

If, after the chest has been opened for empyema, the lung cannot expand, the condition of things is most grave, the life of the individual is not worth more than two years' purchase. A patient with pyopneumothrax, an inexpandible lung, and a thoracic fistula, may walk about, and even improve in general health; but, as time goes on, ulceration of the surface of the lung by irritation sets up phthisis, and it may be said to be a contest between phthisis and albuminoid disease as to which shall destroy life. With such conditions, unless the pleural cavity can be entirely obliterated, a fatal issue is inevitable. In young children this is possible by displacement upwards of the diaphragm and abdominal viscera, by a falling-in of the chest-wall which is pliable, and by granulation tissue; but in the adult, with rigid walls, this favorable result is not attainable. By Estlander's operation of removing ribs, the cavity may be greatly diminished, and cases are on record where it has been obliterated and a cure resulted; but, as far as my observations have gone, the future of this operation is not full of promise.

Can we, I would ask, in a case of empyema prevent the lung from becoming inexpandible,

and thereby reduce the mortality of the disease? I think we can. The inexpandibility of the lung is due to the postponement of pleurotomy,

and would be obviated were that operation performed before the lung had become coated and bound down by false membranes.

NEW REMEDIES,

AND NEW LIGHT ON OLD ONES.

ACONITINE IN FACIAL ERYSIPELAS.

Dr. TISON warmly recommends crystallized ACONITINE in the treatment of facial erysipelas. At the outset of the disease, a saline purgative, an emetic, or an emeto-cathartic is given, according to the condition of the stomach and the intensity of the erysipelas. Then the administration of the ACONITINE is begun, at the rate of $\frac{1}{4}$ milligramme [$\frac{1}{250}$ grain] every 6 hours, day and night. Rarely is it necessary, it is claimed, to continue the medicament for more than three days; often is the affection suppressed even in two days; there is seldom intolerance.

According to the author, under the influence of this treatment, the general symptoms rapidly improve—the headache becomes more bearable; delirium is rarely observed (hardly once in twenty cases); the duration of the affection is shortened, and the painful condition of the patient lasts scarcely but three or four days. It is enjoined not to go beyond the dose of 1 milligramme [$\frac{1}{64}$ grain] per day. If it be desired to employ the medicament in the form of granules, the following formula is recommended:

Aconitine Nitrate (cryst.).....gr. 1SS [10 ctg.].
Milk Sugar.....3 IV [16 gm.].
Acacia3 I [4 “].
Syrupa sufficient quantity.

Divide into 400 granules!—1 every 6 hours.

—It is reported that in Paris there recently were 16 deaths from facial erysipelas in one week, 12 of them in the hospitals.

ALCOHOL BY PARENCHYMATOUS INJECTION IN UTERINE CANCER.

The palliative treatment of uterine cancer by means of parenchymatous injections of ALCOHOL, recently suggested by Dr. H. SCHULTZ, of Budapest, consists (according to the *Bull. Gén. de Thér.*) of injecting with a 5-gramme [80 min.]

syringe, armed with a sufficiently long and resistant needle, absolute ALCOHOL into the thickness of the cancerous tumor. The patient lying on her side, a Sims' speculum is introduced; then, having covered the orifice of the urethra with cotton in order to protect it against the caustic action of the alcohol, 5 grammes [80 min.] of absolute ALCOHOL are injected once or twice, at a variable depth, according to the thickness of the diseased tissues.

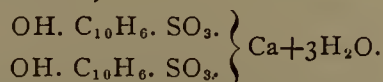
It is stated that the injection is at times painful, but that the pain is but of short duration. The greater part of the injected liquid returns from the tumor and carries with it a large quantity of detritus and shreds of dead tissue.

At first, the injections are made every other day; then daily. After each a piece of iodoform gauze is introduced into the vagina, and retained until the next day.

The results of this treatment are reported as being most encouraging.

ASAPROL;—A NEW ANTISEPTIC, ANTITHERMIC, AND ANTIRHEUMATIC.

ASAPROL (Beta-naphthol-alpha-mono-sulphonate of Calcium)



is a derivative of beta-naphthol, introduced by Drs. STACKLER and DULIEF, of Paris. It is described (*Bull. Gén. de Thér.*) as a whitish powder; soluble in $1\frac{1}{2}$ parts of distilled water, and in about 3 of alcohol; decomposed near 50°C [122 F]. It is said to be prepared by heating 1 part of beta-naphthol with 2 parts of sulphuric acid at 100°C for two hours, and converting the free acid thus produced into the calcium salt.

Bacteriological experiments made with ASA-

PROL at Prof. DUJARDIN-BEAUMETZ's laboratory, have shown that the development of the bacilli of Asiatic cholera, herpes tonsurans, and typhoid fever, was retarded by the addition of 2% of the substance; 3% added to the same quantity of bouillon completely arrested the growth of these bacteria as well as that of the streptococcus aureus, and the bacillus anthracis; 6% arrested the development even of the bacillus pyocyaneus.

In man, ASAPROL, ingested in daily doses of 1-4 grammes [15-60 grs.], is considered a medicament which might be used with advantage in the various manifestations of gout and rheumatism. According to the authors, it does not diminish the urinary secretion, but often augments it; they have found it a useful antithermic in divers infectious conditions, particularly typhoid fever and influenza, and claim to have rapidly cured acute articular rheumatism with the medicament.—(ASAPROL is not as yet on this market.)

BISMUTH SALICYLATE IN CHRONIC INFANTILE DIARRHŒA.

After an experience with BISMUTH SALICYLATE in fifty cases of infantile diarrhœa occurring in children under two years of age, DR. MIKHNEVITCH feels justified in warmly recommending (*Meditz. Oboz.*) the internal use of that medicament in protracted forms of the affection. His usual formula is:

Bismuth Salicylate.....	gr. xxiv	[1.5 gm.].
Powdered Acacia	3 i	[4 “].
Powdered Sugar.....	3 iss	[6 “].
Distilled Water.....	fl 3 vi	[180 “].

Rub-up the powders with two fluid ounces [7.5 grammes] of the water, until a uniform mixture is obtained; then add the remainder of the fluid!—1-2 teaspoonfuls 3-6 times daily.—Keep on ice and shake well before using!

Each teaspoonful of the mixture contains approximately $\frac{1}{2}$ grain of BISMUTH SALICYLATE, which represents a normal dose for a babe six to eight months old. In cases of offensive diarrhœa, it is recommended to give a dose of castor oil before commencing the administration of the bismuth. In large doses, especially in

exhausted children, the remedy is reported to be apt to induce profuse perspiration, followed by general weakness. In such cases it is advised to reduce the dose. In acute cases, the medicament is considered useless; but in all those of a week's standing or more, its effects are described as excellent.

BISMUTH SUB-NITRATE IN BURNS;—NEW MODE OF EMPLOYMENT.

In burns, Dr. K. VON BARDELEBEN, of the FRIEDRICHSHAIN HOSPITAL, Berlin, employs tarlatane bandages impregnated with a mixture of equal parts of BISMUTH SUB-NITRATE and powdered starch. These bandages are applied directly to the affected parts, which are previously washed and disinfected with a 3% solution of carbolic acid or with a $\frac{3}{10}$ % solution of salicylic acid. The first dressing of this kind is left in place at least eight days, and, if necessary, for two and even four weeks.

As can readily be seen, this dressing is not applicable to burns of the face, which we would be compelled simply to powder with the BISMUTH,—a procedure which the author regards as defective and slovenly, and one in which a considerable quantity of the medicament is wasted.

In burns occasioned by chemicals, it is deemed necessary, before applying the BISMUTH dressing, to neutralize the caustic which has penetrated the tissues, by means of washing with lime-water if an acid was the escharotic, or with vinegar if the burn was produced by an alkali.

CAMPHORATED PHENOL IN SOFT CHANCER AND BUBO.

According to Drs. GAMEL and LOP, of Marseilles, CAMPHORATED PHENOL is the best dressing for soft chancres, very favorably modifying the evolution of phagedæna, and rapidly effecting the cure of uncomplicated chancroids. A number of very extensive chancrous wounds that had lost their virulent character, cicatrized in three days under the influence of the following mixture, applied twice daily:

Carbolic Acid (crystallized) 2 parts.
 Camphor..... 5 “
 Mix, and heat gently over a water-bath !

This mixture is a limpid, syrupy liquid, similar to glycerin, with an agreeable odor. Care should be taken to thoroughly cleanse the wound with absorbent cotton each time before applying the CAMPHORATED PHENOL. That done, small pledgets of cotton saturated with the medicament are applied, and maintained in place by means of a long cotton or salol-gauze bandage.

In Dr. GAMEL's service suppurating buboes are treated by incision, washing with strong carbolized solutions, and dressing with CAMPHORATED PHENOL. As for buboes not yet in the stage of suppuration but slow in resolving, they are favorably influenced, according to Dr. GAMEL, by injections of iodoformized ether—1 cubic centimetre [16 min.] of this liquid being injected three times a week by means of a syringe with a needle a little longer than in that used for hypodermic injections.

COCA AGAINST SEA-SICKNESS.

Dr. MEURISSE reports (*Mouvem. Thér.*) on the excellent results obtained from the use of COCA as a preventative of sea-sickness. He employs an infusion made with 6 grammes [$1\frac{1}{2}$ drs.] of the leaves to 100 grammes [$3\frac{3}{8}$ fl. oz.] of water, with the addition of 6 drops of Sydenham's laudanum. The case of two ladies is related, who, during every sea-voyage, were violently attacked with naupathia, the one being even compelled to keep to bed for several days after the voyages. All the known remedies had been tried without success. COCA was now resorted-to. The patients embarking with almost empty stomachs, took a few doses of 30 grammes [1 fl. oz.] each of the above infusion. Although the sea was rough and the voyage long, the ladies felt absolutely no discomfort, and, after landing, experienced neither the vertigo nor the sensation of rolling which formerly persisted for more than twenty-four hours after disembarking.

The case of a man is also narrated, who, during two preceding voyages, had suffered severely

from sea-sickness, and who used the same preparation of COCA, and with the same success.

MENTHOL IN ACUTE SUPPURATIVE OTITIS MEDIA.

Dr. R. CHOLEWA, of Berlin, warmly recommends MENTHOL (Peppermint-camphor) against acute suppurations of the tympanum. In a case of acute otitis media, of recent origin, he proceeds as follows :

If the tympanum is intact and there are no well-defined signs of an accumulation of pus, he first tries to abort the inflammatory process by means of instillations of 10% carbolized glycerin. If this fails (which always happens in cases of suppuration), or when inspection of the still intact tympanum denotes with certainty the existence of a collection of pus, the drum is freely incised, after previous disinfection of the auditory canal. The tympanic cavity is then washed out with a sterilized solution of sodium chloride, injected through a catheter introduced into the Eustachian tube. This done, the catheter is maintained in position, and a few drops of a 10% oily solution of MENTHOL poured into it, and a rubber ball syringe fitted to it with which air is insufflated into the tympanum, for the purpose of propelling through the incision the rest of the sodium-chloride solution and at the same time a certain quantity of MENTHOL. Then after carefully drying the auditory canal, it is closed with a dry tampon of mentholated cotton, conical in shape, introduced in such a manner that its broad extremity hermetically closes the external meatus, while its tapering end, though being in contact with the tympanic membrane, exerts no pressure on the same. The dry mentholated dressing is removed once in twenty-four hours.

According to Dr. CHOLEWA, the discharge, under the influence of this treatment, loses its purulent character, becomes more and more serous, and dries up rapidly; the redness of the tympanum disappears, the incision heals up, and cure survenes on the average in eight days, at the end of which there remains, as the sole relic of the affection, a slight tinnitus aurium.

—It might be interesting to note that almost two years ago, Dr. PENTKOWSKI, of Radom (Russia), recommended Peppermint Oil in suppurative otitis media.

MENTHOL INHALATIONS IN TRACHEITIS.

For almost three years Drs. LUBET-BARBON and A. MARTIN, of Paris, have been successfully employing inhalations of MENTHOL in tracheitis. The apparatus used (as described in the *Sem. Méd.*) is a very simple one, and consists of a bottle with two glass tubes, which contains the MENTHOL. As the latter volatilizes at 45°C [113°F], it suffices, to practice the inhalation, to plunge the lower part of the bottle into warm water, or to heat it gently over the flame of a lamp. The bottle will be seen to fill with whitish vapors, which the patient inhales from one of the tubulures through a rubber tube ending in a glass mouthpiece. The first few inhalations are made carefully and slowly; too large a quantity of MENTHOL might provoke a choking sensation. The inhalations are repeated several times daily, the patient taking five or six inspirations of the MENTHOL each time.

According to the authors, this treatment is indicated in mild cases of tracheitis associated with cough, pain, prickling sensation in the trachea, or redness of the larynx and trachea; it is contra-indicated in the tracheitis of phthisical patients.

MERCURY IN ACUTE INTESTINAL OBSTRUCTION.

Dr. RICHTER, of Gross-Wartenburg, reports (*Deut. Med. Woch.*) on the wonderful results obtained from the use of metallic MERCURY in a desperate case of acute intestinal obstruction. Croton oil and clysters had proved of no avail; there had been faecal vomiting since forty-eight hours; the abdomen was distended, and extremely sensitive to the touch. Six leeches were now applied to the abdomen, and ice and morphine (in bitter-almond water) prescribed for the vomiting. After this treatment had controlled the latter symptom, repeated injections

of large clysters were resorted-to, but without result. The pulse rapidly sank, the countenance became haggard; faecal vomiting re-appeared, and occurred every half hour; in the intervals there were constant eructation and hiccough.

As the idea of gastric irrigation and laparotomy was strongly repulsed by the relatives of the patient, it occurred to the doctor to try, as a last resource, metallic MERCURY, which is steadily falling into oblivion as a medicament. Accordingly, 150 grammes [5 oz.] were at once administered. This had the effect of producing five copious, thin, offensive stools, and of simultaneously causing the passage of an abundance of flatus. This was followed by sleep of several hours' duration. The following day the abdomen was quite soft, and deeply compressible. From that day on, the case made a steady and rapid recovery.

OXY-QUIN-ASEPTOL AS AN ANTISEPTIC.

At the Eleventh Congress for Internal Medicine, recently held at Leipsic, Prof. R. EMMERICH, of Munich, showed a new antiseptic which he called OXY-QUIN-ASEPTOL or Diaphtherin— $\text{HO} \cdot \text{C}_9\text{H}_6\text{NH} \cdot \text{O} \cdot \text{SO}_2 \cdot \text{C}_6\text{H}_4 \cdot \text{O} \cdot \text{NHC}_9\text{H}_6 \cdot \text{OH}$. It may be regarded as a compound consisting of two molecules of oxy-quinoline and one molecule of aseptol (phenol-sulphonic acid.) In the pure state it forms amber-yellow, transparent, hexagonal prisms, which, when powdered, are clearly soluble in 1 part of water; soluble also in dilute alcohol, very sparingly so in absolute alcohol. OXY-QUIN-ASEPTOL melts at 85°C [185°F], but is not altered chemically even at 100°C [212°F],—being decomposed into phenol and oxy-quinoline first when heated to considerably beyond 200°C . Its aqueous solution gives with iron tri-chloride a bluish-green color reaction, which disappears—rather turns to yellow—upon adding hydrochloric acid; with the addition of an excess of soda, the oxy-quinoline is precipitated from the solution, while the phenol remains dissolved.

Bacteriologic experiments made by the author

showed that, whilst $\frac{1}{2}$ - $\%$ solutions of carbolic acid, lysol, and four of the most powerful phenols failed to kill the staphylococcus pyogenes aureus in a quarter of an hour, a $\frac{3}{10}$ - $\%$ solution of OXY-QUIN-ASEPTOL sufficed to completely destroy that germ in the length of time mentioned; even a $\frac{1}{5}$ - $\%$ solution killed it in one hour, while in $\frac{1}{4}$ - $\%$ solutions of lysol, this micro-organism still developed after the lapse of that time. The bacillus pyocyaneus still grew freely in $\frac{1}{5}$ - $\%$ solutions of phenol and of lysol at the end of three-quarters of an hour, whereas $\frac{1}{10}$ - $\%$ solutions of OXY-QUIN-ASEPTOL sufficed to kill that bacterium within forty-five minutes, at the longest. A $\frac{1}{10}$ - $\%$ solution of OXY-QUIN-ASEPTOL destroyed Koch's cholera bacillus within ten minutes; a $\frac{1}{10}$ - $\%$ solution of lysol failed to produce the same effect even in forty-five minutes. Diphtheria bacilli and various other pathogenic bacteria were killed by $\frac{1}{5}$ - $\%$ solutions of OXY-QUIN-ASEPTOL within ten minutes, at the latest.

According to these experiments, OXY-QUIN-ASEPTOL deserves being classed with the strongest antiseptics known; indeed, it appears even to surpass many of the latter in bactericidal power. According to the statements of its introductor, OXY-QUIN-ASEPTOL is a homogeneous and chemically pure substance, and therefore of uniform physiologic and antiparasitic action; it is not likely to be confounded with articles of food, owing to its yellow color; it is relatively non-poisonous (Prof. EMMERICH found that hedge-hogs of medium size bear subcutaneous injections of 5 cubic centimeters [80 minims] of a 5- $\%$ solution of OXY-QUIN-ASEPTOL [equal to 250 milligrammes, or $3\frac{3}{4}$ grains of the medicament], without any noticeable disturbance manifesting itself); very easily and clearly soluble in water; it is not impaired in its disinfecting power by evaporation from the surface of wounds, but, on the contrary, rather increased in its bactericidal capacity thereby—because by weak alkalis and by the blood the active oxy-quinoline is partially precipitated from it in a very minutely subdivided form. OXY-QUIN-ASEPTOL therefore seems to

possess considerable advantages over most of its congeners.

Dr. KRONACHER (*Münch. Med. Woch.*) has employed OXY-QUIN-ASEPTOL in a number of wounds, crural ulcers, panaritias, phlegmons of various kinds, etc.; also in a series of surgical operations (purulent fistulæ, buboes, abscesses, epithelioma, resections of bone, etc.). $\frac{1}{2}$ -1- $\%$ solutions were found most eligible, and perfectly free from irritant effects; infection never supervened,—the course of the restitutive process being always an aseptic one. In burns and extensive ulcers of the leg, lotions of OXY-QUIN-ASEPTOL proved specially serviceable,—appearing, in fact, to be possessed of a peculiar curative action in such cases.

As the sole drawbacks to this new bactericide, it is mentioned, that (1) a black deposit takes place on non-nickel-plated instruments, and (2) it colors the finger-nails yellow,—this coloration, however, being easily removable by washing.

POTASSIUM DI-THIO-CARBONATE; — A NEW DERMIC.

POTASSIUM DI-THIO-CARBONATE — K_2COS_2 — is obtained from the action of carbon bi-sulphide on potash-lye at the boiling temperature. It is a deliquescent, orange-red, crystalline powder; very soluble in water, slightly so in alcohol.

Drs. TOMMASOLI and VICINI (*Rass. di Science Med.*) have employed this new salt with alleged brilliant results, in pustulo-crustaceous eczema (10% ointment), psoriasis (20% ointment), lupus, scrophuloderma, sycosis, and tinea tonsurans. In 5% concentrations it was always perfectly well borne; 10% concentrations sometimes provoked a burning sensation, and increased secretion of the sebaceous glands (amounting, at times, to real seborrhœa); and 20% concentrations frequently produced, particularly in children, excessive congestion and secretion, pustules, and glandular suppurations.

(POTASSIUM DI-THIO-CARBONATE is not as yet on this market.)

PYOKTANIN ANEW LAUDED IN MALIGNANT NEOPLASMS.

At the Sixth French Surgical Congress, recently held at Paris, Dr. NANU reported on the results obtained, at Prof. SÉVERANO'S clinic (Bucharest), from the use of parenchymatous injections of a 1% aqueous solution of PYOKTANIN in twenty-five cases of malignant new-growths—consisting of ulcerated tumors of the buccal mucous membrane, cheeks, eyelids, and parotid gland, and of a uterine carcinoma. In all the cases the diagnosis was confirmed by a microscopical examination made at Prof. BABES'S laboratory. $2\frac{1}{2}$ –12 grammes [40–190 minims] of the solution were daily injected into the diseased tissues. In no instance was there any untoward accessory symptom whatever observed. 10 of the patients were cured; the remainder were much improved by the treatment.

In the cases where the facial bones were implicated, the method was without effect; the tumors had to be removed under chloroform.

In several instances it was proved that the injections caused a necrobiosis of those elements that had been most intensely colored. The treatment is believed to act by intensively staining the nuclei.

Control-experiments made with distilled water invariably had no effect. Experiments on rabbits showed that injections of PYOKTANIN provoke marked œdema and necrosis of the part injected; in man, however, it is maintained that this does not happen,—a necrobiosis of the *cancerous* parts being all that is produced. The author summed up as follows:

1.—PYOKTANIN can cure *some* malignant tumors.

2.—It probably acts by thrombosis, and always produces necrobiosis of morbid tissue.

3.—Healthy organs and tissues are unaffected, the necrobiosis attacking only the diseased parts. In this regard, PYOKTANIN totally differs from caustics, which have not any elective action on the diseased elements, but destroy everything.

4.—The thrombosis produces merely

œdema, in healthy tissues; while in those which are diseased and degenerated, it brings on necrobiosis.

PYOKTANIN IN TUBERCULOSIS.

Dr. G. PETTERUTI, lecturer on medical pathology at the UNIVERSITY OF NAPLES, and Dr. G. MIRTO, have tried intra-pulmonary injections of PYOKTANIN in two cases of pulmonary tuberculosis. The injections were made through the intercostal spaces, directly into the diseased parts of the lungs. The liquid employed was a 1:500 solution of blue PYOKTANIN, of which 0.5–4 grammes [8–60 minims] were injected at a time. In the first case nine injections were made; in the second, three. They were generally well borne; however, when the liquid penetrated into the interior of a bronchus, quite a violent attack of cough was provoked.

As for the therapeutic effect, it was manifested by a considerable diminution in the hectic fever and in the number of bacilli in the sputa.

QUININE IN HYSTERO-EPILEPTIC CONVULSIONS.

Dr. P. CASCIANI, of Montecatani, has had occasion to employ QUININE in seven cases of hystero-epileptic convulsions of an intermittent type, and, it is claimed, with uniform success. It is reported that in three of the patients, who took the medicament in doses of 0.8–1 gramme [12–15 grains], the convulsive attacks were cut short at once and definitively. In two others, the QUININE, employed in doses of 0.3–0.5 gramme [$4\frac{1}{2}$ – $7\frac{1}{2}$ grains], arrested the convulsive attacks for the time being; but they re-appeared, to definitively disappear under the influence of another dose of the medicament. In still another case—that of a child eighteen months old, who presented every two or three days a series of convulsions (hysterical?), beginning between eight and nine o'clock in the morning and ending at about five or six o'clock in the evening—25 centigrammes [$3\frac{3}{4}$ grains] of QUININE bi-sulphate administered dividedly in three doses sufficed to completely suppress the attacks. The bi-sulphate, valerianate, and

citrate of QUININE proved equally efficacious. From these observations the author feels justified in deducing the three following conclusions:

1.—The preparations of QUININE possess the property of preventing the return of hysterical and hystero-epileptic convulsions, when the attacks present a certain periodicity.

2.—To obtain a positive effect with certainty, the medicament must be administered in large doses (0.8–1 gramme [12–15 grains]), at least one hour before the expected attack.

3.—Among the various salts of QUININE, the preference should be given to the bisulphate, as being the most active; but the valerianate or the citrate may also be used.

SODIUM SALICYLATE IN SPRAINS.

Without desiring to lay any claim to priority relative to the use of SODIUM SALICYLATE in sprains, Dr. LABBÉE relates a few facts (*Sem. Méd.*) pertaining to this subject. In a case of sprain of the tibio-tarsal articulation, he observed, after the administration of 4 grammes [1 dram] of SODIUM SALICYLATE in twenty-four hours, that the pain completely disappeared, so that as early as the next morning, massage could be resorted to without occasioning the slightest pain, and after four days the patient was cured. Since then, he has prescribed the same treatment in a number of other cases of sprain, and has always obtained, it is claimed, equally satisfactory results as in the above-mentioned case.

VIBURNUM AGAIN RECOMMENDED IN DYSMENORRHŒA.

It is known that the dysmenorrhœa sometimes observed in virgins, is, in the large majority of cases, of a mechanical nature,—that is to say, it is due to an antifixion of the uterus, either congenital or acquired. In this form of dysmenorrhœa, the uterine pains appear abruptly *with* the catamenial flow, persist as long as the menses, cease with them, and do not show themselves during the intermenstrual pe-

riod. Such are the characteristics which clearly distinguish mechanical from congestive dysmenorrhœa. In the latter, the pains survene one or two days *before* the sanguineous flow, and disappear in the course of the first or second day of menstruation, and the intermenstrual periods are not entirely free from painful sensations in the hypogastrium.

According to Dr. JOSEPH, of Landeck, VIBURNUM PRUNIFOLIUM constitutes an excellent means of treating mechanical dysmenorrhœa in virgins. Its action is reported (*Ther. Monatsh.*) to be sure and powerful in nearly every case,—the rare cases in which it fails being those where the dysmenorrhœa is not purely and simply mechanical, but where there also exist inflammatory conditions of the ovaries or of the peri-uterine tissues. To obtain a complete effect, it is necessary, according to the author, to commence the administration of the medicament ten to fifteen days before the expected flow, and to continue it until the end of the same. From 20 to 25 drops of the fluid extract are given 4 times daily, and, it is maintained, with the result of thus obtaining absolutely painless menses. Besides its analgesic action, the VIBURNUM is credited with also having the effect, in the cases of too abundant hæmorrhage, of reducing the loss of blood to its normal proportions.

ZINC CHLORIDE INJECTIONS IN UNUNITED FRACTURES.

At the Sixth French Congress of Surgery, recently held at Paris, Dr. MÉNARD, of Berck-on-the-sea, reported the case (*Rev. de Chir.*) of an oblique compound fracture of both bones of the leg, in which, although there had been no suppuration, there still was no consolidation after five months' rigorous immobilization, but in which injections of ZINC CHLORIDE brought about a rapid union of the fragments. The knowledge of Prof LANNELONGUE's experiments on the formation of bone in rabbits as the result of injections of ZINC CHLORIDE into the periosteum, induced the author to try this means in the case in question. Accordingly,

1.25 grammes [20 minims] of a 10% solution of ZINC CHLORIDE were injected into the outer and posterior surfaces of the tibia, and into the space between the fragments. The injections were quite painful; but after immobilization of

the limb for a fortnight, the tumefaction had all disappeared, and the seat of fracture was surrounded with firm callus. Two weeks later, that is, one month after the injection, union was complete, and the patient could walk.

PRACTICAL HINTS

ON METHODS IN THERAPY, PHARMACY, ETC.

CONDURANGO;—PHARMACOLOGY.

CONDURANGO has been employed in powder, in alcoholic tincture, in wine, in cold infusion, in fluid extract, and in decoction. According to Dr. H. L. REBOUL, its active constituents are insoluble in water; for this reason it has been found expedient to treat the bark with the processes ASTIER uses in granulating cinchona bark,—consisting in treating the drug with vehicles appropriate to the solution of its active principles, combining the fluids thus obtained, evaporating them in vacuo, and replacing the inert matter by sugar. Only the bark of CONDURANGO *blanco* is employed

ABDOMINAL HERNIA;—NEW OPERATION FOR ITS RADICAL CURE.

In a pamphlet recently published by I. ARTERO, of Rome, Dr. BOTTINI says (according to the *Brit. Med. Journ.*) that to attempt to close up, by itself, the passage down which the hernia has travelled, or to block up the external orifice by itself, is a delusion; the resulting resistance is far too weak to withstand abdominal pressure. It is the internal orifice, and this alone, which should be closed (by sutures). This is done by bringing together its margins, without disturbing the anatomical relations of adjoining structures, whether the hernia be oblique or direct. The sac is a secondary matter; it may be excised—all or part—or left, according to circumstances. Whether the hernia be free, incarcerated, or strangulated, it makes no difference; the methodical closure of the internal opening is the only thing aimed-at. The hernia is thoroughly opened up along its length, the

aponeurosis of the external oblique, and the fibres of the internal oblique, are reflected on a director, and the neck of the sac is laid bare and very carefully and thoroughly isolated. Then the bowel is returned—the sac being incised or not, according to circumstances; in congenital herniæ, the incision is best avoided. Two Hagedorn's needles armed with catgut are passed, the first from within outwards, embracing not only the free margins of the internal oblique and transversalis, but the aponeurosis of the external oblique; the lower suture passes well into the thickness of Poupart's ligament. Then the needles are withdrawn, and a finger is introduced into the orifice to control the tightness of the threads which are now drawn up. The patient is directed to cough, and if any bulging be felt, a third suture may be inserted; this, however, is seldom necessary. After a fortnight the patient is perfectly cured, no truss or bandage being afterwards required. Nine femoral, twenty-one inguinal, and one umbilical herniæ, were thus operated-on, all with perfect success.

CHROMIC ACID AS A TEST FOR ALBUMIN AND BILIARY PIGMENTS.

According to Professor ROSENBACH (*Deut. Med. Woch.*) CHROMIC ACID is a reliable and quite sensitive test for albumin and biliary pigments in urine; a few drops of a 5% solution added to a slightly acid urine containing albumin, produces a yellowish, flocculent precipitate. If a precipitate of phosphates occur upon boiling the urine, it will be redissolved by the addition of the CHROMIC-ACID solution; and, if albumin be also present, the characteristic albu-

minous precipitate will be formed at once. It is maintained that it is not necessary, as a rule, to boil the urine; precipitation of urates, as occurs with nitric acid, was never observed. Should, however, any urates be precipitated, and the yellow color of the flakes not be deemed sufficiently characteristic, it is advised to boil the urine, so as to dissolve the urates.

On carefully adding a 5 % solution of CHROMIC ACID to urine containing biliary pigments, drop by drop and under constant agitation, a green coloration of considerable permanence is said to be produced; when an excess of the acid is added a brownish-red color is developed. It is claimed that CHROMIC ACID does not produce any other colorations (blue, red, etc.), which so much obscure the results with fuming nitric acid. A striking effect may be obtained, according to the author, by dropping the CHROMIC-ACID solution on the sheet of filter paper through which the icteric urine has been passed.

ALBUMINURIA IN ACUTE GONORRHŒA.

At the second session of the SOCIÉTÉ FRANÇAISE DE DERMATOLOGIE ET DE SYPHILOGRAPHIE, Drs. F. BALZER and A. SOUPLET, of Paris, communicated their observations on albuminuria associated with acute gonorrhœa, observations which testify to the relative frequency and importance of renal complications in the latter affection. Since then, these investigators have had occasion to observe a great number of analogous cases and to more completely study the pathogenesis and symptomatology of gonorrhœic albuminuria. These observations (*Sem. Méd.*) have shown, as did the previous ones, that albuminuria occurs in about 12% of the cases of acute gonorrhœa; and from this it can be seen of what importance to the physician is the examination of the urine in patients with gonorrhœa—particularly in the cases complicated with orchitis, in which albuminuria is specially frequent. It is advised that this examination be made with the greatest care. The urine should be filtered, and treated first with acetic acid, and then, *separately*, with nitric

acid and heat. If the patient have previously taken copaiva or analogous substances, the urine should be treated with absolute alcohol, ammonia, or ether, in order to dissolve the balsamic precipitates.

According to the authors, gonorrhœal albuminuria varies in its pathogenesis: it may survive from ascending gonorrhœa (cystitis and uretero-pyelo-nephritis), by general infection, or, lastly, under the influence of both of these two factors combined, with the predominance of one or the other. Whatever be the mode of production, there may be distinguished two principal clinical types: latent and mild albuminuria; and grave albuminuria.

The former, the more frequent of the two, reveals no sign of its existence aside from the presence of albumin in the urine. It is evolved in a latent matter; it cannot be foreseen, and nothing subsequently suggests its existence.

The second, much rarer than the first, manifests itself first by an abnormal condition of the stomach with anorexia, survening abruptly and increasing later-on. The tongue has a characteristic appearance: it is very saburral, always moist, broad but not thickened, and rather whitish than strikingly filthy. The gastric state seems to be in close correlation with the albuminuria; it lasts just as long as the latter does. At the same time, there is observed a series of other symptoms: quite intense cephalalgia with prostration, diminution of energy, motor and cerebral inactivity; heaviness of the limbs with renal or lumbar pains; paleness of the tissues, particularly of the face, without swelling or œdema; slight fever, the temperature fluctuating between 38–39°C [100.4–102.2°F]; sometimes profuse sweats.

This clinical picture thus is that of an infectious disease.

The duration of gonorrhœic albuminuria is altogether uncertain; according to the researches of BALZER and SOUPLET, when treated, it very often lasts 6–8 days, seldom 15–20, still more rarely yet longer.

It is generally conceded that albuminuria constitutes an important element in the prog-

nosis of gonorrhœa. It serves, on the one hand, as an index of the extension of the affection, as well as of the indications for treatment and diet; on the other hand, it suggests watching the patient with a view to possible future development—gonorrhœal albuminuria, even when transient, being able to play the rôle of an ætiological factor in subsequent renal affections.

The treatment of gonorrhœic albuminuria employed by BALZER and SOUPLET, is as follows: Rest in bed, milk-diet—absolute or mitigated—and alkaline drinks (lemonade containing small doses of bi-carbonate or salicylate of sodium).

Rest is considered of the greatest importance. It often happened that patients who, when admitted to the hospital, had an abundant albuminuria, no longer presented that condition after the following or second following day.

It should be mentioned that, according to the observations of the above-mentioned authors, the balsamic mixtures and salol do not appear to play any part in the production of gonorrhœic albuminuria; furthermore, in cases where the albumin was present only in traces, the patients continued to take the electuary of copaiva and cubebs, and, nevertheless, the albuminuria always disappeared rapidly.

CREASOTE;—ELIMINATION BY THE URINE.

In a discussion on the elimination of CREASOTE by the urine, which took place at a recent meeting of the SOCIÉTÉ DE THÉRAPEUTIQUE DE PARIS, the following views were put forth:

Dr. KÜGLER thinks that in consequence of using suppositories containing CREASOTE, the latter reappears in the urine, and that the patients taste the medicament, and that their breath smells of it. Dr. BERLIOZ has never been able to find CREASOTE in the urine after administering this drug in pills. Dr. CATILLON has arrived at the same negative result after injections of creasoted oil. However, some physicians admit that the urine is manifestly affected when CREASOTE has been absorbed by the skin

in rather large doses; others believe that the CREASOTE is absorbed by the branches of the vena porta, and eliminated by the salivary glands, the pulmonary mucous membrane, and—above all—by the kidneys. The urine then presents the characteristic brownish-green coloration.

Dr. BERLIOZ thinks that those physicians are wrong in trusting to the sense of smell, and that most—if not all—of the CREASOTE is eliminated by the lungs, and that its passage by the kidneys is very dubious. However, Dr. LABBÉE recalls that the administration of CREASOTE in large doses produces inflammatory and painful symptoms in the urinary tract, and that something abnormal takes place there. Dr. BARDET does not admit the transformation of CREASOTE into phenol, and thinks that the blackish coloration of the urine might be produced apart from the presence of phenol. Dr. CATILLON believes that the mode of administering the medicament varies the results: for he has obtained a negative result after a hypodermic injection of creasoted oil; while he has been able to extract CREASOTE in notable proportion from the urine of a patient to whom 3 grammes [45 min.] of that drug had been administered by enema. He actually thinks that, while the lungs are the principal and probably the only channel of elimination of the CREASOTE when the latter is given in small doses, it passes out in small quantity with the urine when administered in large doses—either in its natural state, or in combination. But he no longer believes in the transformation of CREASOTE into carbolic acid.

SOLUTION OF IRON TRI-CHLORIDE is recommended by Dr. TETZEL as a local application to *soft chancres*,—to be continued for three to five days, when the sore is dusted with calomel.

COCCIDIA OF CANCER, according to Dr. FABRE-DOMERGUE, are *not parasites*, but rather intra-cellular alterations of the epithelial tissue; between these pseudo-coccidia and normal epithelial cells all phases of transition are possible.

COCCYGODYNIA.

Dr. R. OLSHAUSEN, professor of gynæcology at KING FREDERICK-WILLIAM'S UNIVERSITY, Berlin, reports (*Zeitschr. f. Geb. u. Gyn.*) that he has found coccygodynia very frequent in its milder forms. It is specially common in retroversion and severe pelvic congestion during the menstrual periods. In all serious cases the cause is in all probability traumatic, the injury being generally received during labor, but often under other circumstances. In such severe cases nothing is of avail, in the author's opinion, save circumcision (subcutaneous incision of the soft parts adjacent to the coccyx), or excision of the coccyx. The patient is placed on the right side; a tenotomy-knife is thrust into the integuments, behind the median line of the coccyx, and pushed in all directions between the bone and the tissues covering it. The left forefinger is kept in the rectum, to avoid injuring the bowel. The tissues at the extreme end of the coccyx are in every case divided subcutaneously, great care being taken not to wound surrounding structures. In case the pain recur after this operation, the coccyx is excised. The deep wound left after removal of the bone is plugged.

The professor claims to have cured a very obstinate case of coccygodynia in the above manner.

BURSAL AFFECTIONS.

According to Dr. R. H. LUCY, of Plymouth, hæmorrhages and sudden serous effusion into the cavities of bursæ, have not received much notice nor the attention they deserve. Hæmorrhage into a bursa, he says (*The Lancet*), is traumatic in origin, and may follow (a) contusion or (b) severe and sudden movement of the joint over which the bursa is situated. The sacs most liable to this injury are, in order of frequency, (1) the two pre-patellar, subcutaneous and subfascial; (2) that over the olecranon process; (3) that over the tuber ischii; and (4) the subacromial bursa. The position of these over bony surfaces or "points" favors the production of this condition.

The subject of hæmorrhage is considered important, because the signs accompanying the presence of blood in bursal sacs, are those which would lead us to confidently expect pus, and the author has seen many cases of enlarged bursæ treated by incision, when the sole contents were blood in various states of change, or merely serum more or less blood-stained. Following a blow, fall, or severe strain, a swelling appears in the anatomical position of a bursa; this enlargement comes on rapidly—usually in a few minutes, and patients state that the lump has been "the same size ever since the fall, etc.," a most important point in the history. On palpation, fluctuation is readily obtained, with a certain amount of pain and tenderness, especially when caused by contusion; in a few days redness and œdema of the skin over and round the bursa appear, and the classical cardinal signs of inflammation ("tumor, dolor, rubor, calor") present themselves, but no pus but "cruor." The thermometer is here considered the best, though not an infallible aid. In hæmorrhage pure and simple, although the signs of suppuration appear so unequivocal, the temperature is rarely above normal. Relying on signs alone, Dr. LUCY has seen many bursæ opened as abscesses, to find nothing but a blood clot or serum, with, in some cases, such as the pre-patellar bursæ, thin pus in the subcutaneous, but blood-clot only in the thick-walled subfascial cavity, analogous to the so-called "reflex abscesses" outside a joint, the seat of commencing disease. It is in these cases that ecchymosis is not present, it is maintained; when it is, no doubt exists as to what composes the tumor-contents. Crackling or rubbing is a sign especially marked on palpating a subacromial bursa filled with blood-clot. The so-called "melon-seed bodies," so often demonstrable by palpation, at the bottom of such bursæ as the olecranon and pre-patellar, are, in the author's opinion, evidences of former hæmorrhage, being composed of condensed decolorized (more or less) fibrin, either free in the cavity, or moored by a longer or shorter

pedicle to the interior; occasionally, they are fixed and sessile.

As regards treatment, the limb should be immobilized on a splint, an ice-bag or evaporating lotion applied, and rest of the joint ensured for several weeks, if the patient be anæmic or tubercular, in order to prevent suppuration. It is stated that the swelling slowly subsides, leaving "melon-seed bodies" behind, and these seem to be the starting point of hæmorrhage following exertion. That hæmorrhage into bursæ is more common than it is supposed, is proved by finding broken-down clot in the contents of abscesses caused by the bursting of a suppurating bursa into the subcutaneous tissues—*e. g.*, round the knee-joint.

Another interesting condition, of which Dr. LUCY has seen several examples in the subcutaneous pre-patellar sac, is the deposit of tubercle in bursal cavities, leading to infiltration of the overlying skin, suppuration, and finally an ulcer of the size and shape of the bursa. These have been accompanied by other tubercular affections, and were most obstinate to treatment.

ALTERNATING CURRENTS OF HIGH TENSION IN THERAPY.

Drs. GAUTIER and LARAT recently presented to the ACADÉMIE DES SCIENCES of Paris, a very interesting communication on the therapeutic utilization of the alternating current of high tension, in which, after describing in detail the apparatus they have been using, they recommend a trial of this form of electricity in all diseases where there is a slackening of metabolism—as in gouty and rheumatic affections, obesity, perhaps diabetes, etc., and in those caused by a depression of the cerebro-spinal system—of which neurasthenia is the type. It is claimed that very favorable results have already been obtained from this method of treatment in certain cutaneous affections accompanied with pruritus.

The paper also contains a description of an electrical appliance for producing ozone by electrolysis of the air, which, however, from a therapeutical point of view, has the great draw-

back that the ozone thus produced is always mixed with numerous nitrous products; it is to these the authors ascribe the complications that have been observed (angina, bronchitis, vertigo, etc.). Electrolysis of the air is therefore considered a defective means of producing ozone, one which could be greatly improved-upon; and, in spite of the prevailing opinion in medicine, it is maintained that this ozone has thus far produced no improvement in tuberculous, anæmic, or emphysematous patients who have been submitted to its inhalation.

INFECTIOUS BRONCHO-PNEUMONIA OF INTESTINAL ORIGIN IN CHILDREN.

Five years ago Dr. SEVESTRE, physician to the HÔPITAL TROUSSEAU at Paris, pointed out, for the first time, some cases of infantile broncho-pneumonia which he believed were incidental to intestinal infection. Since then he has been able to complete, by new observations, the clinical study of this morbid form of broncho-pneumonia, as yet little known to practitioners.

According to Dr. L. RENARD, assistant to Dr. SEVESTRE, the semeiology of broncho-pneumonia of intestinal origin is as follows (*Sem. Méd.*): the affection begins with a more or less intense diarrhœa; the color of the stools (which number 6–20 a day) is variable: sometimes green, sometimes white, but usually yellowish; the strong fetor of the passages is one of the most constant characteristics of the disease; the abdomen is distended; the face is pale; the eyes are sunken, the pupils dilated; the tongue is white; the spleen, usually perceptible on palpation, is generally not very large; the liver is enlarged and extends considerably beyond the false ribs.

The pulmonary phenomena break out only after several days, and it is only then that fever supervenes, which, however, no longer exists when the diarrhœa appears. The patient coughs and has moderate dyspnœa. Auscultation reveals coarse râles in the whole chest. Then, in certain points—over the apices and bases of the lungs and in the

arm-pits, a murmur is heard, and a diminution of the vesicular murmur is observed. The murmur is not very intense, is expiratory, and generally extends backwards. Later, there is noticed at the different points occupied by the murmurs a focus of subcrepitant mucous râles, which are heard most frequently over the two bases, but also at the summit posteriorly, and in the axilla. In general, the signs furnished by auscultation are variable and migratory; the râles and the murmur shift from the axillary region towards the anterior part of the thorax, and from left to right. The foci of broncho-pneumonia are usually multiple, and the lesions generally bilateral.

The fever runs a very irregular course; the temperature oscillates between 38.8 and 40° C [101.8 – 104 F]. The pulse is very rapid (120 – 160), but as a rule regular.

The course of broncho-pneumonia of intestinal origin is reported to be very irregular. In mild cases, the pulmonary phenomena are but very little marked; the fever falls after two or three days; the diarrhœa diminishes progressively; the auscultatory signs improve; and cure survenes on the seventh or eighth day of the disease. In other cases, however, the affection steadily grows worse and ends in death at the end of a variable period of time, most often on the tenth or eleventh day. In some instances the patients take several weeks to get over the disease. In this prolonged form, the diarrhœa presents variations in frequency, and the pulmonary signs change from one day to the other.

According to the author, there are also some very acute forms; but they are very rare. In those cases the pulmonary phenomena predominate, and death rapidly survenes from asphyxia.

True relapses might also be observed: after a remission of variable duration, the diarrhœa again appears, the temperature rises, and the pulmonary symptoms present themselves.

In the fatal cases, the children die most often in collapse; death by asphyxia is rare, and is only observed in the very acute forms.

The cure is said to be rapid sometimes, slow at others; in the latter case, the system often becomes a favorable soil for the development of the tubercular bacillus.

In a general way, broncho-pneumonia of intestinal origin is considered a serious affection, the prognosis varying according to the age of the patients and their previous history, as well as according to their surroundings. The most of the deaths imputable to this disease have occurred in children under two years. In the cases treated at the HÔPITAL TROUSSEAU, the termination has almost always been fatal, which is explained by the crowded condition of the hospital. In subjects predisposed to tuberculosis, it is maintained that broncho-pneumonia of intestinal origin hastens the appearance of tuberculous complications, as already mentioned, and quickly ends in death.

In Dr. SEVESTRE'S opinion, the capital point in the treatment of the kind of broncho-pneumonia under consideration, consists in practicing energetic antiseptics of the intestine. To do this, he administers, at the beginning of the disease, calomel, which, besides its antiseptic action on the intestine, is said also to have the effect of relieving the pulmonary congestion. The dose of calomel employed is 5 centigrammes [$\frac{3}{4}$ grain] for children under six months; above this age, the dose is increased by 5 centigrammes for every six months up to two years; after this age, it is augmented by 5 centigrammes for each year. The following days, betol—or better yet—benzo-naphthol is given, in some such formula as the following:

Benzo-naphthol	gr. XV–XXIII	[1–1.5 gm.].
Gum mixture	fl. $\frac{3}{4}$ 11	[60 “

To be taken during the day in three doses. Shake the bottle before using.

The pulmonary phenomena are combated by means of dry cups or wet cups, according to the intensity of the symptoms. Mustard poultices, applied several times daily, are considered equally useful.

If the condition of the patient grows worse, if the dyspnœa increases, it is advised to make two or three injections of ether or of caffeine

daily. Tonics are also recommended. The symptoms of collapse are treated with dry frictions, rubbing with alcohol, and wrapping in cotton.

Special attention is paid to alimentation; milk is the only nourishment given.

In conclusion, it is urged to isolate the patient as much as possible, from other children, broncho-pneumonia of intestinal origin being an infectious, a microbic disease. In fact, as has been shown by the researches of LESAGE and RENARD, its cause is the direct action on the lung of the *bacterium coli commune*—the pathogenic agent of infectious diarrhœas, as well as of some other microbes proceeding from the mouth of the subjects or from the air which they breathe.

JOINT DISEASE IN BLEEDERS;—DIAGNOSIS AND TREATMENT.

In bleeders there are observed peculiar affections of the joints which often closely simulate tuberculous arthritis, but which are the consequence of an effusion of blood into the articulation,—in other words, of hæmarthrosis.

The differential diagnosis of these articular affections from tuberculous arthritis or white swelling, is of the greatest practical importance even to the physician, who so often sends to the surgeon patients in whom operative interference appears to be indicated. In fact, an error in the true nature of the disease may in these cases cost the patient his life.

And still this mistake is easily made: it has been committed twice in the course of the same year by one of the most distinguished German clinicians,—Dr. FRANZ KÖNIG, professor of clinical surgery at the UNIVERSITY OF GOETTINGEN. These two patients, both bleeders, succumbed to incoercible hæmorrhages a few days after simple incision of the knee-joint. The professor believed them to be suffering from tuberculous arthritis; he saw his mistake only after he had opened the articulation. He then confined himself to simple drainage of the joint; but the patients died, as has already been said, of hæmorrhage, which nothing could arrest.

These two unfortunate cases induced Dr. KÖNIG to undertake a special study of the diagnosis and treatment of affections of the joints in subjects of the hæmorrhagic diathesis. The following is a succinct résumé of his investigations (*Sem. Méd.*):

The pathogenesis of joint-disease in bleeders resolves itself into these two factors: repeated intra-articular hæmorrhages, and irritation of the joint from motion—the patient continuing to use the articulation infiltrated with blood.

The arthritic affections in bleeders present a very variable aspect according as they are recent or old. Three stages can be distinguished. The first is that of the primitive bloody infiltration of the joint. The disease then presents the clinical picture of a hæmarthrosis developing abruptly, but spontaneously, in the *absence of all traumatism*. The patient continues to use the affected joint, which is *not painful*. Aside from the history, which shows that the patient is a bleeder or belongs to a family of bleeders, the diagnosis often is facilitated by the presence of subcutaneous ecchymoses about the diseased joint, and by the appearance, a few days later, of greenish spots on the skin of the regions more or less removed from that joint. The diagnosis of the hæmarthrosis is all the more important as, in the majority of cases, it is the physician and not the surgeon that sees the patient in this period of the affection.

The first effusion of blood into the articulation may be absorbed, and the hæmarthrosis cured. But if that absorption does not take place, the blood which is in the joint acts as an irritant; new hæmorrhages occur, and there develops a peculiar form of inflammation—*panarthritis*, simulating white swelling or tuberculous (fungous) arthritis. The diagnosis in this stage is often very difficult. Nevertheless, it can be established on the existence of some of the following signs: youth and peculiar paleness of the patient; presence in other joints of old lesions that have already lead to contractures; the appearance of spon-

taneous articular infiltrations (hæmarthrosis) while the case is under observation; an ancestry of hæmorrhagic diathesis. The diagnosis becomes almost certain if it can be learned, either from the patient or from the doctor who saw him previously, that the affection developed *abruptly*, that the articulation had not been painful at the outset, and that the aggravation survened slowly, by steps.

The second stage is succeeded by a third, that of contractures, of ankyloses, and of articular deformations. To diagnosticate the affection in this stage from tuberculous arthritis, we must be guided on the one hand by the family history, and on the other by the absence of fistulæ and abscesses, so frequent in tuberculous arthritis, but which are never observed in the articular inflammations of bleeders. In bleeders' arthritis all operative interference, save simple puncture of the joint,—which is sometimes indicated, must be abstained-from. Such is the fundamental therapeutic rule which should never be departed-from.

In the treatment of a recent hæmarthrosis in a bleeder, the first thing to do is to energetically insist, in spite of the patient's protests, on rest of the affected articulation. The patient should not walk if a lower extremity be implicated; if an arm be attacked, he should abstain from all manual labor. Furthermore, the affected articulation is submitted to a moderate compression.

If, in the second stage, that of panarthritis, the blood effused into the joint fails to be absorbed, and in consequence of the resulting inflammation the parts become painful, puncture of the articulation, followed by irrigations with carbolyzed solutions, may be resorted-to with advantage. Prof. KÖNIG has employed this treatment in three patients; in two of them complete cure was obtained; the third was much alleviated.

In the third stage we must try as much as possible to correct the abnormal positions of the affected members, by means of appropriate apparatuses.

INTRA-GLANDULAR MAMMARY ABSCESS.

According to Dr. M. HACHE, professor of surgery at the UNIVERSITY OF BEYROUTH, to obtain a prompt cure of intra-glandular abscesses of the breast, it is necessary, after incision, to resort to uniform and energetic compression of the gland, so as to realize the complete and permanent evacuation of pus (*Sem. Méd.*) He incises the purulent focus *not* at the most dependent point, as is habitually done, but where the abscess has become *most superficial*—which in a large number of cases dispenses with the use of drainage-tubes, which retard healing and render compression painful. In fact, when the incision is made at the most superficial point of the abscess, the lips of the wound are constituted of the skin alone or the latter lined with a thin layer of glandular tissue; the constant flow of pus suffices to maintain the gaping of the incision, provided the latter be large enough (4–6 centimetres [$1\frac{3}{5}$ – $2\frac{2}{5}$ inches]). But if, on the contrary, the incision be made at the most dependent point of the purulent collection, a certain thickness of the gland must necessarily be cut through. In these cases the abscess empties itself only through a sort of channel, which is easily obliterated by compression; hence the necessity of introducing a drainage-tube.

After the incision is made, Dr. HACHE insures the complete evacuation of the pus—often difficult to obtain—by freely irrigating with a 1:10000 solution of mercury bin-iodide, and strews a little powdered iodoform upon the edges of the wound, which is then covered with a compress boiled in the same mercurial solution. The diseased breast and also that of the opposite side (if the woman does not need it to nurse her child) are then freely covered with cotton. A little cotton is also placed upon the chest, and uniform compression is made with the aid of bandages—care being taken to raise the affected breast against the upper part of the thorax as much as possible. The first two turns of the bandage are applied rather loosely; then, with a linen bandage, very energetic compression is exercised, which, provided it be regu-

larly distributed, is almost always very well borne.

The dressing, when well made, may remain in place for two or three days. At the end of this period it should be renewed, because the diminution in the volume of the breast will already have rendered the compression made the first day insufficient. However, no injection need be made into the abscess, from which pressure now ought not to bring forth more than a few drops of pus; when the breast has become so flabby that it is difficult to uniformly compress the whole of it by simply bandaging it to the thorax (after the second dressing, sometimes even after the first), very efficacious compression can be established with the aid of a *wet* gauze bandage, which is first wound around the thorax two or three times, and then circularly around the affected breast (previously covered with a thin layer of cotton), going from the periphery towards the nipple. Owing to this concentric compression, the breast regains a sufficient consistency to enable it to be energetically applied against the chest by means of a few turns of the bandage.

In the cases which Dr. HACHE has treated in this manner, the spontaneous pains ceased almost always in from one to three days after the incision of the abscess, and the patients could be considered cured at the end of the first week, at which period all pain and all discomfort—local and general—had disappeared. Furthermore, the breast having been well propped up and immobilized, the patients were not obliged to stay in bed and could even continue their usual occupations. The average duration of this treatment was two weeks.

In those cases where the thickness of the gland traversed by the incision was not less than a finger's breadth, Dr. HACHE was obliged to resort to drainage,—employing drainage-tubes whose length scarcely exceeded the depth of the incision, and withdrawing them as soon as possible (after four to six days, at the latest).

CERIUM OXALATE has been found to be a good remedy against *dysmenorrhœa*.

PELVIC VARICOCELE AND ITS TREATMENT.

This question presents a great practical interest, since dilatation of the veins of the broad ligament is held to be very frequent and to play an important part in the pathogenesis of the female genitals, particularly in those pseudo-metrites in which disturbances from passive congestion predominate. Unfortunately, there is, it is maintained, no clinical sign, properly speaking, which is characteristic of pelvic varicocele, and owing to whose presence the affection might be supposed to exist in the living subject with more or less probability. Although this is so, it is urged to bear in mind pelvic varices whenever we meet with varicous patients presenting at the menstrual period exaggerated symptoms of congestion, followed by profuse hæmorrhages.

Dr. Pozzi, hospital-surgeon of Paris, treats pelvic varicocele in the following manner (*Sem. Méd.*): If there are violent pains with menstruation, rest in bed, a light diet, and opium-enemata are prescribed. To combat the stasis of blood in the pelvic organs, the patient practices, in the intervals between the menses, vaginal injections of hot ($45-55^{\circ}\text{C}$ [$113-131^{\circ}\text{F}$]) water; rectal irrigations with water of the same temperature are said to produce still more marked effects on the pelvic circulation. The latter are made mornings and evenings, with the aid of a soft catheter which is introduced about 10 centimetres [4 inches], in such a manner that the warm water may act on the entire rectum, from top to bottom. It is considered well to previously introduce a small porcelain dilator into the anus, for the purpose of favoring the exit of the liquid. For these irrigations water which has been both filtered and boiled is used, and injected in quantities of 5-6 litres [about 5-6 quarts] each time. This very simple treatment is reported to be very efficacious. Certain "vascular tonics"—such as tincture of *hydrastis canadensis* in doses of 30 drops three times a day, or, better still, fluid extract of *hamamelis virginica* in daily doses of 10-20 drops—are also regarded as useful. But it is advised to employ the latter

medicament prudently, because it is believed to exercise an energetic action on the circulation.

In cases where these means prove insufficient, it is recommended to have recourse, first, to uterine curettage; if, in spite of the latter, the pains, the nervous disturbances, and the hæmorrhages persist and assume a grave character, castration is mentioned as a last resource. Still, according to Dr. Pozzi, it is chiefly in cases of pelvic varices that hæmatocele survenes after castration.

OSSEOUS SUTURE IN FRACTURES.

At the Twenty-first Congress of the GERMAN SURGICAL SOCIETY, recently held at Berlin, Dr. PFEILSCHNEIDER, of Schönebeck, reported that he had obtained good results in quite a large number of cases from osseous suture as a means of keeping fractures reduced, when the latter could not be properly realized with the aid of apparatuses. It is above all in fractures situated in the vicinity of joints, that osseous suture is believed to possess advantages over all the other means of keeping fractures reduced, all other methods necessitating prolonged immobilization, and consequently giving rise to grave and persistent functional disturbances.

The first case treated in this manner was a multiple fracture of the lower part of the tibia in a man forty years of age. First a plaster-dressing was applied; however, after a few days, violent pains survened in the seat of the fracture, necessitating the removal of the dressing. As the retention of the fragments proved very difficult, it was decided to suture them. Owing to the multiplicity of the bony pieces, the operation naturally presented some difficulties. Three wires were passed either from one fragment to the other, or around two of the pieces. The retention thus obtained is reported to have been perfect, and the patient could get up after three weeks. One of the wires was removed at the end of a year; the other two have been left in the tissues. Thus, although the fracture was situated immediately above the articulation, an excellent result was obtained.

It is well known that after fractures of the epiphysis of the radius, the functional condition leaves much to be desired. In two cases of this kind (occurring in a young boy and in a man of about sixty, respectively), Dr. PFEILSCHNEIDER claims to have had good results from the osseous suture, and strongly recommends the latter also in fractures of the fibula; he has practiced it with perfect success thirteen times. The advantage of this method is said to be that the patients can get up at the end of two or three days.

DIGITALIS IN LARGE DOSES.

Dr. MARIUS, of Liege, had made numerous investigations on the posology of DIGITALIS, and found that not only can that drug be taken in the dose of 4 grammes [1 dr.] in twenty-four hours without inconvenience, but also that in such large doses, it rapidly and surely prevents the dangers that may arise from cardiac weakness and hyperthermia. The author differs in opinion from Dr. PETRESCU, in that he declares that the use of DIGITALIS in large doses neither abridges nor arrests the evolution of pneumonia. Often, it is maintained, does DIGITALIS, in doses of 4 grammes [1 dr.] daily, in infusion, produce useful effects within forty-eight hours, sometimes after thirty-six hours, occasionally even in twenty-four hours; however, its action is reported to be slower in febrile than in cardiac affections. In the dose mentioned, it succeeds, Dr. MARIUS claims, in a large number of cardiac and infectious febrile diseases—particularly in pneumonia, in restoring the energy of the heart, and in slowing and regulating its contractions; there is no effect produced if the cardiac muscle is too much altered, or when the nervous system of the heart is no longer sufficiently excitable.

Daily doses of 0.75–1 gramme [$11\frac{1}{4}$ –15 grains] of DIGITALIS, in infusion, are insufficient, in the author's opinion, and usually act only on the third day of the administration. Thus, it appears that, from a physiologic as well as a pathologic point of view, the toxic dose of DIGITALIS in man has been placed at entirely too low a figure.

GATHERED FORMULAS.

79.—Creolin-Pearson in Diphtheria.

[JACOB MUNK—*La Sem. Méd.*]

—PAINT.—

Creolin-Pearson..... 1-2 parts.
 Water..... 100 “

Externally!

(The parts which are the seat of the false membranes, are wiped three times daily with a small pledget of cotton saturated with this solution. At the same time, compresses of iced water or ice are constantly applied to the throat externally. Under the influence of this treatment, combined with a stimulant [wine, cognac], the author claims the false membranes and fever disappear in three days.)

80.—Gonorrhœal Erections.—(Treatment.)

[*Journ. des Mal. Cut. et Syph.*]

—PILLS.—

Camphor..... 2 grammes [30 grains].
 Opium Extract..... 0.2 gramme [3 “].

For 20 pills!—4 pills to be taken at night,—1 every 15 minutes.

81 and 82.—Naphthalene in Thread-worm.

[MINERBA—*Méd. Mod.*]

—ENEMA FOR CHILDREN.—

Naphthalene..... 1- 1.5 grammes [15-23 grains].
 Olive Oil..... 40-60 “ [1¼-1½ fl. oz.].

For one clyster!

—ENEMA FOR ADULTS.—

Naphthalene..... 5- 6 grammes [1¼-1½ drs.].
 Olive Oil..... 60-80 “ [1½-2½ fl. oz.].

For one clyster!

83.—Salol in Chapped Hands.

[*Ann. de Méd.*]

—OINTMENT.—

Salol..... 2 parts.
 Menthol..... 1 part.
 Olive Oil..... 2 parts.
 Lanolin..... 60 “

For inunction!—Apply 2-3 times daily.

84.—Lingual Eczema.—(Treatment.)

[BESNIER—*J. de Méd. et de Ch. Pr.*]

—OINTMENT.—

Cocaine..... 0.05 gramme [¾ grain].
 Peru Balsam. } of each, 1 “ [15 grains].
 Boric Acid ... }
 Vaseline..... 40 grammes [1¼ ounces].

Externally!—Rub the tongue several times daily.

85 to 87.—Analgesie in Dental Caries.

[HUGENSCHMIDT—*Sem. Méd.*]

—SOLUTION.—

Menthol..... 3 parts.
 Chloroform..... 5 “

or:

Atropine Sulphate..... 1 part.
 Morphine Sulphate..... 2 parts.
 Distilled Water..... 300 “

Externally!—Saturate a pledget of cotton with this solution, and introduce into the carious cavity.

(*N.B.*—The latter solution should *not* be intrusted to the patient!)

—PASTE.—

Cocaine Hydrochlorate.. }
 Morphine Hydrochlorate } of each, equal parts.
 Creasote..... } enough to make a paste
 } of the consistency of cream.

Externally!—Apply to the cavity on cotton.

88 and 89.—Alveolo-dental Periostitis.—(Treatment.)

[THE SAME.]

—WASH.—

Iodine Tincture..... 5 parts.
 Belladonna Tincture..... }
 Hyoscyamus Tincture..... } of each, 2 “
 Laudanum (*Rousseau's*)..... }

or:

Iodine Tincture..... 100 parts.
 Aconite Tincture (*Fleming's*)..... 20 “
 Cocaine Hydrochlorate..... 3 “

Externally!—Bathe the gum about the affected tooth herewith.

(*N.B.*—The latter wash should *not* be left in the hands of the patient.)

90.—Ichthyol in Lingual Psoriasis.

[THE SAME.]

—OINTMENT.—

Ichthyol..... }
 Pyrogallic Acid..... } ..of each, 1 part.
 Salicylic Acid..... }
 Chrysarobin..... }
 Lard..... 20 parts.

Externally!—Apply several times a day.

(According to the author, this ointment is well borne, and can be rendered still more active by diminishing the quantity of lard.)

EDITOR'S NOTES.

OX-BILE, A GENERAL DIGESTIVE AID.

In my paper under the above title in the July issue of this Journal (page 381), I should have mentioned that the one brand of ox-bile, found to be pure and satisfactory in every respect, was E. MERCK'S.

I feel compelled to make this additional statement, in view of the numerous inquiries received from all parts of the country.

WILLIAM HENRY PORTER, M.D.

August 10th, 1892.

NEW BOOKS.

THE MEDITERRANEAN SHORES OF AMERICA,—SOUTHERN CALIFORNIA; its Climatology, etc. By P. C. REMONDINO, M.D.—F. A. Davis & Co., Philadelphia and London, 1892.

A book is often best judged by the preface, for if that does not attract the attention and awake the interest of the reader he rarely proceeds further. The author says: "Climate is a wonderful as well as a powerful factor—be it in religion, arts, sciences, or civilization. It makes morality and creeds: the wild and weird mysteries of Eleusis, the festivals of Roman Flora, or the orgies that accompanied the feasts and worships of Dionysius or Bacchus never could have taken place except between certain latitudes."

How often are the people charmed by what the climate brings to them, be it but the festival of Bacchus! With the physician, however, it is different. In an extensive practice he is ever meeting certain cases largely of the neurasthenic or nervous types where any change of environment makes possible an improvement. Also a very large percentage of pulmonary affections are improved and often cured by a radical change to an equable climate where nutrition can be largely increased. And yet this is but stating the smallest number of those who seek the advice of their physician as to where they should go for their broken health either actual or supposed. The reason why so many are sent abroad is certainly due to the ignorance so prevalent about our own country. The physician is often taxed to the utmost therefore in trying to find a suitable place for these seekers after health. He cannot visit each locality and study for himself—and so the information given, by the volume before us, of one of the most healthful spots on our globe should be heralded with delight.

The book is most comprehensive in its scope, scholarly in its compilation, and clear and interesting in its composition. Just those things about the climate, rainfall, etc., of our Western Riviera are mentioned, which it is necessary to know before coming to a conclusion and

giving an opinion. A short epitome is given of the meteorological conditions and disease; sea-air and marine climates; ocean moisture and soil moisture; extreme dryness of the air; consumption and temperature; relative merits of altitude; consumption and altitudes; importance of ventilation; importance of equability of temperatures, etc., etc.

With the facts, brought out in discussing the above important elements, well in mind, the author takes us at once into one of the most interesting descriptions, from a medical standpoint, of Southern California; its physical, meteorological, and climatological conditions. Nothing of value to the physician can be thought of that is not mentioned. The book abounds in instructive and interesting charts and tables explanatory of the text, and in artistic and unique illustrations of that peculiarly romantic, almost sublime district, whose existence in our midst "as an island on land" is one of the wonders of our cosmopolitan hemisphere.

The volume is most heartily recommended to the profession as far above the ordinary in supplying his wants in the study of the climatology of this region, and to the laity as a most pleasing descriptive and illustrative book written by a resident of that section of the country which it so richly pays the tourist and invalid to visit.

J. W.

DISEASES OF THE NERVOUS SYSTEM. By J. A. ORMEROD, M.D. Oxon, F.R.C.P.—P. Blakiston, Son & Co., Philadelphia, 1892.

While this little work makes no attempt to replace the excellent and elaborate treatises upon the nervous system, it is offered as an introduction to those larger works and as an outliner of the matter to be acquired. In this respect the author may justly be proud of his work.

The first seventy-four pages compass an introductory sketch of the anatomy and physiology of the nervous system, which is perhaps essential for a complete understanding of the following chapters.

The second chapter is devoted to a study of the diseases of the nerves, parenchymatous inflammations, etc.; the extraneous diseases of the blood-vessels, bones, meninges, and tumors.

In the third chapter we find the general symptoms associated with the nervous system, and the various methods of investigation both concisely and clearly stated. A careful study of this chapter will unquestionably be of great aid to the general practitioner in studying cases which present symptoms of nervous derangement.

In the portion devoted to the eye-symptoms and defects in the field of vision, the same indefiniteness in the use of technical terms is apparent as in most works dealing with this part of the subject

The remaining chapters are devoted to the consideration of neuritis, and the organic lesions of the spinal cord and cerebral tissue.

As a whole this little work is a very good epitome of what is known concerning nervous diseases, and can be recommended as a valuable aid to the beginner in the study of diseases of this class.

MANUAL OF SKIN DISEASES WITH SPECIAL REFERENCE TO DIAGNOSIS AND TREATMENT for the use of the General Practitioner. By W. A. HARDWAY, M.D.—Philadelphia: Lea Brothers & Co., 1891.

By the declaration of the preface we find that this little book was originally intended exclusively for the physicians and students attending Dr. Hardaway's course in dermatology. That, later, it was enlarged and widened in scope so as to meet the demands of the general profession.

The work is divided into two parts:—the first or introductory observations, and the second devoted to special treatments,—the diseases being alphabetically arranged.

In Part I, Symptomatology, in a general way, is carefully reviewed. General ætiological factors and methods of diagnosis are given. The local distribution of skin diseases is briefly stated.

Treatment is subdivided into Hygienic and Dietetic measures, and the use of internal and external medications.

Under food we find that "certain kinds were probably responsible for the various cutaneous disorders." We also find evidence against the use of the much lauded oat-meal. The author says, "I should also add oat-meal to this *index expurgatorius*, although I am aware that its injurious effects have been disputed." "Whether these are direct or are due to the frequent dyspepsias that arise under its use," he continues, "I cannot say; still my own experience has been positively against its employment as an article of diet, and I always interdict its use."

This section also contains a good tabular classification and statistical tables regarding skin affections.

In Part II each disease is taken-up separately, and its ætiology, pathology, diagnosis, and treatment is carefully considered with much detail.

That portion devoted to treatment abounds in prescriptions, which are always welcome to the practitioner.

The work as a whole will be found quite satisfactory as a ready reference in the management of skin affections.

More specific directions, regarding the management

of the diet in each case, would have been of great assistance to the student, and would have added largely to the value of the book.

A CLINICAL-RECORD CHART.

THE IMPROVED CLINICAL RECORD AND TEMPERATURE CHART.—By F. E. STEWART, M.D., Ph.G., Demonstrator of Materia Medica and Therapeutics at Jefferson Medical College, Phila., Pa. The W. H. Seidel Co., New York.

This little chart has been very conveniently arranged, so that the chief points relative to the history of a case can be briefly noted.

The temperature chart is very well arranged. Unfortunately, however, the chart does not contain sufficient room for any extended history of the case. As a rule it is those cases which are somewhat prolonged and which present many interesting features that generally require recording. The chart will undoubtedly often be found disappointing for want of space. With the exception of a few typographical errors it is very well printed.

BOOKS RECEIVED.

INTERNATIONAL CLINICS; A Quarterly of Clinical Lectures in Medicine, Neurology, Pædiatrics, Surgery, Genito-Urinary Surgery, Gynæcology, Ophthalmology, Laryngology, Otology, and Dermatology by Professors and Lecturers in the leading Medical Colleges of the United States, Great Britain, and Canada.—Edited by JOHN M. KEATING, M.D., JUDSON DOLAND, M.D., J. MITCHEL BRUCE, M.D., F.R.C.P., and DAVID W. FINLAY, M.D., F.R.C.P.—Philadelphia: J. B. Lippincott & Company, 1892.

A NEW PRONOUNCING DICTIONARY OF MEDICINE, a voluminous and exhaustive hand-book of Medical and Scientific Terminology, with Phonetic Pronunciation, Accentuation, Etymology, etc. By JOHN M. KEATING, M.D., LL.D., and HENRY HAMILTON, with the collaboration of J. CHALMERS DA COSTA, M.D., and FREDERICK A. PACKARD, M.D.—Philadelphia: W. B. Saunders, 1892. 818pp. Price: Cloth, \$5.00; Sheep, \$6.00;—both net.

RECENT PAPERS.

A STUDY OF TYPHUS FEVER; clinical, pathological, and bacteriological. By John Winters Brannan, M.D., and Timothy Matlack Cheesman, M.D.—Reprint from *Medical Record*.

THE TREATMENT OF ANÆMIA by a new Preparation of Iron. By Reynold W. Wilcox, M.A., M.D.—Reprint from *New York Medical Journal*.

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VEGETABLE ACIDS IN RHEUMATISM.

The vegetable acids—such as malic, citric, tartaric—have been highly recommended from time immemorial as valuable curative agents in rheumatism. These acids are said to increase the alkalinity of the blood by the formation of alkali-salts—such as citrates, malates, and tartrates, of sodium, etc.

How and where these citrates, malates, and tartrates are formed, has never been very clearly elucidated. The statement has been made that they are formed by some action of the animal organism; but any detailed designation of the place of their chemical mutation has been carefully omitted,—either for the want of time, or as being too simple a matter to require explicit definition.

Neither assumption, however, is very helpful to the student when engaged in his course of medical study; and they are still less so to the investigator who is anxious to secure the exact truth regarding these mutations.

The investigator naturally turns first to the works upon chemistry, to solve

the mystery. There he finds that all these vegetable acids have one or more replaceable hydrogen atoms, and that they can combine with various metallic substances and form alkali-salts; but, *how and where*, in connection with the physiological mechanism, these chemical mutations occur, is found to be outside the province of ordinary chemistry. Therefore, he next pursues his investigation through works devoted to physiology and to physiological chemistry,—feeling sure that they must contain the much-desired information. He feels confident that he will there find a complete and lucid statement as to the point in the animal economy where these changes are effected; and he also looks for an explanation of the methods by which those acids are transmuted into salts. To his surprise and disgust, he finds his search bootless. All that can be found is the bare statement of the fact of such transmutation, without any attempt at explanation—either practical or theoretical. Next, the *materia medica*, and works devoted to the physiological actions and therapeutic utility of drugs, en-

gage the careful attention of the investigator. In these treatises, he feels sure, the desired knowledge must be recorded; but to his surprise he finds less information here, even, than has already been presented in the works devoted to chemistry, physiology, or physiological chemistry; all of which is most unsatisfactory. Yet, the statement is again iterated, that the vegetable acids play an important part in rendering the alkalinity of the blood stronger, and in preventing or curing rheumatism.

This, then, appears to be the extent of the knowledge commonly possessed in regard to the action and utility of those acids. It certainly furnishes little or no light regarding the conditions of the system which indicate that these acids are demanded for perfecting the workings of the physiological mechanism and to enable disease to be dispersed or cured. It does not tell the physician when to administer these acids with profit to the system; nor when to desist from their use (as with carbolic acid and many other compounds recently dealt-with in MERCK'S BULLETIN). *And, still*, it is quite possible to name with certainty the place where these transmutations are effected when the vegetable acids are taken in the food-stuffs or administered as remedies. And, with this point once established, the further action of these substances can be more perfectly explained than previously.

When the vegetable acids enter the digestive tract, with the food-stuffs, or are administered as adventitious substances in the form of medicaments, they come into contact—in the stomach or intestinal canal—with numerous alkali-compounds,—especially with such having sodium for their base. Hereupon,—just as has recently been shown in these

pages, with regard to carbolic acid,—the malic, citric, or tartaric acid likewise (by virtue of the excess of sodium compounds contained in the food-stuffs over what can be absorbed, and which must pass off, unutilized, in the fæces) is found to act upon the normal sodium phosphate present, for instance,—forming a di-sodic phosphate, and also a citrate, tartrate, or malate of sodium, according to the acid administered.

Thus, as with the use of carbolic acid, there is an increase of the di-sodic phosphate over and above the quantity ordinarily formed through the action of the gastric hydrochloric acid. In addition to this, there is introduced, into the blood and lymph-stream, a considerable quantity of sodium malate, citrate, or tartrate. These salts, by their alkalinity,—and by virtue of the fact that they have made absorbable some of the saline elements contained in the chyme, that otherwise must have passed off with the fæces,—have a tendency to reduce the *so-called* “super-acidity” of the blood (a condition, however, that never exists so long as life lasts).

What is clearly accomplished by the presence of these salts in the blood, is, *to increase the already-existing alkalinity of the blood* (for the blood during life is *never acid*).

After serving their purpose in this respect, these salts (citrates, malates, or tartrates) pass out of the blood through the capillary walls that constitute the Malpighian tufts,—as do all the other saline compounds. Having reached the lumen of the uriniferous tubules,—at the point where the uric acid is normally excreted,—they are acted-upon by the uric acid; with the formation of corresponding urates, and the reliberation of the malic, citric, or tartaric acid, respectively.

As these vegetable acids are freely soluble, and much less irritating than the uric acid, they relieve the irritating quality of the urine in its further passage through the urinary tract.

There is, however, so far as the above-noted changes are concerned, no possible way in which the vegetable acids can be made to entirely abolish the acidity of the urine. They do have the power to convert the uric acid into a urate, and thus also to prevent, partially, the transmutation of the normal phosphate into di-sodic phosphate;—in this way they reduce the intensity of the acidity; but the urine remains acid from the presence of the freely soluble vegetable acids that have been re-formed.

Assuming, however, that the uric acid will by preference attack the alkaline base of the malates, citrates, and tartrates, instead of that of the di-sodic phosphate (thus forming the more soluble urates *without* the full development of mono-sodic di-hydrogen phosphate),—the acidity of the urine may be completely overcome *so far* as the uric acid and the mono-sodic salts are concerned.

By thus wholly preventing the *complete* decomposition of the strongly alkaline or normal phosphate of sodium into the acid mono-sodic phosphate, and by the discharge of *a large amount* of the alkaline vegetable salts into the lumen of the tubuli uriniferi, the acidity of the urine may even finally be quite neutralized, and this fluid may thus be rendered bland, or even alkaline in reaction, in the following manner:—Assuming that the vegetable acids, being present in excess after the uric acid is disposed-of, attack by preference the tri-sodic phosphate and thus *re-form* the alkaline citrates, malates, and tartrates of sodium, and a di-sodic phosphate;—this would

displace all the vegetable acids, convert the normal or alkaline tri-phosphate into the neutral di-sodic salt, and leave, as the total gain, the alkaline salts of the respective vegetable acids. By this series of transmutations, the urine becomes first neutral and then alkaline, where these vegetable acids or salts are very freely administered.

As the weight of clinical evidence proves conclusively that the administration of the vegetable acids or their salts will rapidly change super-acid urine to such having a neutral or even alkaline reaction,—it is but just and scientific to argue that the above-outlined chemical transmutations are the *modus operandi* by which these results are obtained.

Admitting all that has gone before as true,—still it does not explain the alleged usefulness of these vegetable compounds in the treatment of *rheumatic affections*. For all the changes here described were wrought upon the “*outside*” of the body, either at one end or the other of the circuit, and not within the blood-stream, lymphatic channels, or tissues of the body.

Regarding rheumatism in the light of a suboxidation of the alimentary proteid molecules, with the formation of lactic acid as a by-product (which acid under favorable circumstances is formed in and eliminated through the renal cells, but which under less favorable conditions is formed at any point in the system by a vicarious action of the diseased protoplasm, thus exciting the local manifestations and symptoms known as rheumatism, with all the accompanying inflammatory changes),—it still is hard to explain, logically, the *modus operandi* by which the introduction of an excess of the citrates, malates or tartrates, or of

the corresponding acids, can remedy this state of suboxidation of the proteid bodies, and prevent the formation of lactic acid as a by-product; *unless* the incomplete oxidation mentioned were the result of a defective supply of di-sodic compounds and of a reduced alkalinity of the blood. It is *not* possible, therefore, by remedying these defects through the action of the vegetable acids in forming di-sodic compounds and alkali-salts, as already described, to obtain a more perfect transmutation of the proteid molecules, and establish a healthier metabolism throughout the system,—thus dispersing the rheumatism.

The immediate presence—on the other hand—of the vegetable salts at any given local point in the system, where the lactic acid is being formed by the vicarious action of the protoplasm and by the consequent incomplete oxidation of the proteid, can be of no great chemical value. It might happen that the lactic acid would decompose the citrate, malate, or tartrate, thus forming a lactate of the metal with which these acids were combined. This would get us rid of the lactic acid; but, in exchange, there would be left the citric, malic, or tartaric acid from the decomposed salt. This free acid must again be satisfied;—so that nothing is gained, but “Peter is robbed to pay Paul,” leaving a large deficit at “Peter’s” end.

Consequently, it becomes impossible to formulate any series of chemical mutations by which the so-called good effects of the vegetable acids in rheumatism can be satisfactorily explained. No therapeutic utility can thus be claimed from their administration with a view to curing rheumatism.

Clinical experience again comes to our aid, proving conclusively that the vege-

table acids and salts *do not cure* rheumatic affections with any degree of certainty. They often cause some improvement in the symptoms. They reduce the acidity of the urine, and thereby decrease largely the excitation of the whole system which often comes through the reflex irritation caused by the super-acid and scalding urine. While they relieve many of the aggravating symptoms, they rarely if ever cure the rheumatic affections.

Dieting, together with the ingestion of vegetable acids or their salts, often is followed by a complete disappearance of all rheumatic manifestations. The drug gets the credit, while the careful regulation of the diet accomplished the result.

In this way much contradictory evidence is produced. But where it is carefully analyzed, and the chemico-physiological laws are accurately and intelligently interpreted, it is found that the clinical evidence absolutely corroborates the chemico-physiological phenomena;—*it is shown* that these acids and salts do not cure rheumatism;—and thus empiric guesswork gives place to scientific certainty.

ILLEGITIMACY.

A study of the causes of illegitimacy is interesting both to the moralist and to the physiologist. To the former, it holds out the motive that by methods solely his own the evil may be decreased and the sanctity of the home and regard for chastity restored. To the physiologist it appeals, that if possible, he may trace in it an inherent condition, predisposition, mental abnormality, or physical idiosyncrasy.

What explanation can be offered for its ever growing prevalence in this and other countries? To what causes can

we trace the curious differences of the percentages of illegitimate births in almost neighboring sections of the same state?

From a study of the remarkably high percentage of illegitimate births—*one in seven*—which has existed for a long time in five counties of northeastern Scotland, a Dr. LEFFINGWELL has been led to conclude that “we must look mainly to the inheritance of race and the proclivities of immediate ancestry.”

Unfortunately so many things which can not be easily explained are laid to “ancestry,” that one rather scents ignorance whenever the phrase is used. However this may be, we can eliminate many supposed causes for this delinquency which at present puzzles inquiring minds.

Time was when this “abnormal tendency to illicit relationship” was supposed to be due largely to the ignorance of the people. This explanation is not considered worthy of serious consideration at the present day, for in the sections of Scotland above mentioned—and for that matter throughout many portions of other countries—94 per cent of the adult women are able to write.

Nor can it be laid at the door of poverty; as in the poorer districts of both Ireland and Scotland the rate of illegitimate births is lower than in the more prosperous districts.

Those parts of Scotland first referred-to were the home of KNOX, and other reformers, whose teachings are so greatly cherished; therefore a lack of religious feeling can hardly be an influencing factor.

Some economists would consider that the surplus of women was an important element. As a matter of fact, however, we find that in other districts, where this

evil is not so common, the percentage of unmarried females is greater.

Neither is the phenomenon here discussed “traceable to any centralized predominance of vicious propensities” in any one part of the country. Certain districts of a country only seem to be particularly affected; but the distribution of these over the entire face of the country is of a remarkable evenness.

Certainly, a plausible explanation for this peculiar moral disease, and one which withstands most of the modern criticism, is the one previously mentioned, that the condition is primarily influenced by inherited ancestral predispositions; just as we have the same predisposing factor prominent and necessary in tuberculosis. And, as in consumption, we farther have *two other* conditions necessary for the development of the disease,—an inflammatory state and the presence of the required germ,—so in the unfortunate condition under consideration we have, as the second factor and active agent, the localized social dominion of unfortunate propensities and feelings; while the nature of the function parallel to the tubercle germ, as the third factor in illegitimacy, is evident enough.

The two conditions of physical and of moral decay, respectively, are strikingly illustrated by Consumption and Illegitimacy; and as to their incipency, manifestation, and growth, they are remarkably analogous.

Men like DARWIN and HUXLEY have made the study of the tracing-out of the immutable forces which govern the natural processes both a delight and a benefit, and other great minds have led us to consider our mode of being and condition as a potent agency in influencing *the future* characters and the conduct of our progeny.

THE CHOLERA.

Within the last few weeks evidence has come to hand showing that the United States are in danger from the near approach of cholera.

The rapid spread of this disease upon the European continent, together with its invasion of the shipping-ports that are in direct communication with ours, fully justifies the sounding of a note of alarm on our shores.

It demands that the sanitary officers of our ports be constantly on the alert for the detection of the presence of cholera on board the incoming vessels; for, by so doing, and by enforcing the most rigid quarantine rules, the danger of importing cholera can be reduced to a minimum, if not absolutely prevented.

Once landed, it may cause more trouble and expense to stamp it out than can easily be estimated;—to say nothing of the possible mortality.

As the period of incubation in cholera is rarely over five days, unless new cases constantly develop during the voyage, its detection on the incoming ships is more easily effected than that of diseases having a larger period of incubation.

Added to this, an efficacious disinfection of all the effects of immigrants coming from foreign ports will greatly aid in the exclusion of cholera.

It is at such a time as this that bacteriology exhibits its highest utility; for the dejections of all suspicious cases can be subjected to a thorough bacteriological investigation and the absolute nature of the discharge positively determined therefrom, thus deciding, pro or contra, as to the case in question being one of cholera.

If this bacteriological investigation is followed in every case in which the slightest suspicion exists, many cases that otherwise would escape detection will

be recognized; and this makes it possible to prevent the entrance of cholera by the avenue of personal conveyance.

Another important factor to be remembered in the spread of cholera, is that while due attention is devoted to the passenger traffic and its baggage, general merchandise, coming from infected regions, may be the medium through which the germs of cholera will gain access to our shores. Therefore it is equally important that all merchandise, coming from cholera-infected districts, should also be thoroughly inspected and fumigated, if absolute immunity is to be secured.

Every quarantine station, at such a time as this, if not all times, should have its bacteriological laboratory and competent bacteriologist, to aid the officer of the port in his arduous and responsible duty in the detection and prevention of the entrance of cholera into the United States.

These bacteriological stations should be established at every port along the Atlantic and Pacific coast at which foreign vessels are liable to land. For uniformity of action and most thorough effectiveness they should be established and maintained by the National Government, and not be left to the separate States to inaugurate as occasion may appear to demand. While a great danger unquestionably stares us in the face, advanced science has produced the knowledge and power to prevent its occurrence if due care is exercised.

It is with pleasure that we note that DR. JENKINS, the present health officer of our largest port of entry,—New York,—has duly prepared every means at his command for the prevention of the danger which threatens this continent.

We hope he may enjoy the distinguished honor of succeeding in the absolute prevention of the entrance of cholera at this port.

MEDICAL REPORTS

TO "MERCK'S BULLETIN."

CORRECTION.—Dr. GEORGE SMIRNOFF, Lecturer on Syphilis at the University of Helsingfors (Finland), is the originator of the modification of SCARENZIO's method of Calomel Injections, as described in Prof. DE MICHELE's Report in our August Number. The name was there *Misprinted* as "SMIRHOFF."—[ED.]

CANTHARIDIN, AND ITS EFFECTS UPON TUBERCULAR LUNG DISEASE,

As Illustrated by cases from the Medical Clinic
of the New-York Post-Graduate Medical
School and Hospital.

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A very large contingent of the dispensary patients of large cities being composed of subjects afflicted with tubercular disease of the air-passages, it is the sacred duty of the physician in charge to use his best endeavors, to apply his keenest judgment, and to exercise unwearying patience,—in order to cure these most pitiable sufferers during *the early stage* of the disease, to alleviate their manifold and ever increasingly harrassing symptoms; and, toward the end, one is strongly tempted to cut-short the ravages of the last days of these sick poor. It is needless to state that this latter impulse is never carried into effect; whereas the former is but seldom successful. Any new line of treatment that is advocated or even suggested on good grounds by a medical authority of good repute, is therefore readily given a trial, and pretty generally applied in this class of diseases.

Among others, this was the case with me regarding LIEBREICH's advocacy of the injection of Cantharidin in the treatment of tubercular conditions. I had the following experience with this method:

In the making of the solution, the formula

as given by its originator in the *Therapeutische Monatshefte* (*) was followed absolutely. The injections were made three times a week, and with but a few exceptions they were all made in the gluteal regions on alternate sides. The cases taken were unselected, of every-day occurrence, and representing all stages of the disease; in every case tubercular bacilli were present.

To determine what effect Cantharadin had on the pulmonary condition, all drugs which in any way might affect the pulmonary condition were withheld during the first few days of the treatment. The gastro-intestinal tract was treated from the very beginning in such cases as required it: as a rule, an initial dose of calomel was administered; whenever the gastric digestion was imperfectly performed, a mineral acid, preferably dilute hydrochloric, was given combined with pepsin; and in such cases where the liver and intestinal tract were at fault, a capsule containing two grains of inspissated and purified fel bovis, one grain of the sulphate of quinine, one grain of the extract of taraxacum; and when constipation was marked, one to two grains of the compound extract of colocynth and one-fourth of a grain of nux vomica, three times a day before meals.

If the cough continued to be abundant and harrassing after two or three Cantharidin injections, the following mixture was given:

Deodorized tincture of Opium.....	2 drams.
Am. Muriate and Am.-Carb.....each	2 drams.
Tincture Cubebs.....	4 drams.
Syrup Tolu.....sufficient to make	3 ounces
after the salts were rubbed up with the syrup.	

A perfect suspension is made, of which mixture a teaspoonful is administered every three to four hours. When the cough prevented sleep or produced marked dyspnœa, then morphine in small doses was given.

(*) See MERCK'S BULLETIN, Vol. IV., pp. 29, 44, 45, *et seq.*

For the debilitating night-sweats, camphoric acid in the dose of twenty grains was given with excellent results. The urine was constantly observed by frequent chemical and microscopic tests, and the sputum repeatedly examined for bacilli. These were present in all cases.

When beginning the treatment, it was resolved not to publish any preliminary report of the treatment after a few weeks' trial, but to wait a whole year to see if any permanent effect had been developed, or any change in the course of the disease had been brought-about.

The following cases represent the ravages of the malady in all its stages. The treatment itself was continued as long as the endurance of the patient lasted.

— CASE NO. I. —

G. S., æt. 34; U. S.; cigar-maker. Both parents died of consumption. The patient had enjoyed good health until September, 1890, at which time he suffered with an attack of mumps. During the month of January, 1891, he was seized with a heavy attack of bronchitis, which has continued with him ever since, affecting his condition so much that he has lost in flesh and strength, producing considerable dyspnœa and night-sweats; has also reduced his appetite, induced a persistent nausea unaccompanied by vomiting, save during a protracted spell of coughing; bowels alternating between constipation and diarrhœa. Specific history is denied.

Physical examination revealed a much-emaciated frame; jaundiced condition of the skin; marked anæmia of the visible mucous membrane. The chest expands but very little; retraction of the supra-and infra-clavicular spaces; ribs protruding; supra-spirous space likewise retracted: this condition is more marked on the left side than on the right. Dulness marked on the left side until the third rib; percussion sound poor on the right side. Broncho-vesicular breathing accompanied with moist râles; over the

second rib on the left side, amphoric breathing, but no "cracked-pot" sound elicited. Heart's action regular, pulse 120, temp. 102.2°. Tubercular bacilli present in abundance; urine by an oversight not examined on the first day.

June 8th:—I injected $\frac{1}{600}$ grain of Cantharidin.

June 10th:—No irritation produced along urinary tract. Specimen of urine brought is stated to have been like urine passed for last several weeks. The same was smoky in color, acid in reaction, sp. gr. 1.021; contained considerable albumin, hyaline, granular, blood casts, and free blood-corpuscles. General condition apparently somewhat better; cough unaffected as yet; temperature 100.5; pulse 110.

If the urine had been examined at the previous visit of the patient, he would not have received an injection of C.; but as the drug had not produced any unfavorable result, the instituted treatment was continued (2d injection).

12th:—Cough is less, sleep more restful, urine contained less albumin; the number of casts and quantity of free blood-corpuscles diminished. The third injection of $\frac{1}{600}$ grain of C. administered.

19th:—Sixth injection of $\frac{1}{600}$ grain of C. During the week, the cough had not lessened any; on the contrary, it had become a little more harrassing; the bowels ceased to act regularly, but the urine continued to improve until to-day when there was no albumin; no casts nor blood present. He was now given the capsule with *fel bovis* before each meal; and, to allay the irritating cough, $\frac{1}{16}$ grain of morphine every three hours.

29th:—Some improvement as regards the cough, the appetite, and the condition of the intestinal tract; in fact, he has so far recovered as to be enabled to work several hours at his trade. On this day the injection was increased to $\frac{1}{450}$ grain.

July 6th:—The condition was recorded

as satisfactory; no fever present; cough moderated very much; sputum readily raised but still contains bacilli. The *thirteenth* injection increased to $\frac{1}{300}$ of a grain.

8th:—Felt well; no urinary irritation developed; urine was darker than heretofore; quantity of C. reduced to $\frac{1}{450}$ grain.

15th:—The urine was again clear, but a trace of albumin was to be detected.

22nd:—The *twentieth* injection given; the same was again increased to $\frac{1}{300}$ grain.

24th:—As no untoward symptoms had this time developed, the same quantity was again injected. The subjective symptoms would induce one to consider that the case had improved under treatment, but the physical examination of the patient was not so re-assuring. Dulness had at this time extended over the whole of the left chest anteriorly; posteriorly, dulness over supraclavicular space; retraction of chest-wall was more pronounced than at first examination. The right apex anteriorly dull, the rest of the right chest gave but a poor pulmonary percussion note; broncho-vesicular breathing present over left lung; region of amphoric breathing was slightly larger, but no "bruit de pot fêlé" was heard over this region. Over the right lung, sibilant and sonorous breathing was heard.

The extraordinary amount of patience, and the marked degree of physical endurance, of the patient being exhausted, together with the enforced consciousness that this line of treatment had not only not cured him but had been insufficient to even stay the ravages of the disease, his *twenty-first* dose of C. ($\frac{1}{300}$ grain) was *the last* we dispensed.

From this time on, the treatment was purely symptomatic; with considerable stimulation, and sufficient morphine to quiet his distressing cough and the extreme dyspnoea which had now become the most prominent symptom.

G. S. continued as a dispensary patient until December of 1891, during which time

he had endured several acute exacerbations of nephritic lesions; he was then removed to hospital, where he soon expired.

—CASE NO. 2.—

A. K., æt. 50; native of Germany; stone-cutter. Had always enjoyed good health up to several months ago, when he began to be troubled with an irritating cough accompanied with but very little expectoration; dyspnoea quite marked; appetite fair; vomited only occasionally, and then only after a prolonged spasm of coughing; no nausea; bowels irregular in their action; no aches of any kind; one brother died of phthisis; otherwise his family record is good.

June 10th:—Physical examination demonstrated a robust and well-built man, muscles still large and firm; but entire chest expansion only one and a third inches. Over the left lung the percussion note was dull at the upper portion; over the right lung a fair pulmonary percussion note was yet obtainable. Inspiratory murmur over both lungs anteriorly harsh, more marked on the left side; here also were to be heard subcrepitant râles; posteriorly the air did not penetrate well into the ultimate vesicles; upon forced respiration the breathing took on a sibilant character. Temperature 100°; pulse 100; tubercle bacilli present in sputum; urine negative. Injected $\frac{1}{600}$ grain of C.

12th:—The patient asserted having experienced a degree of dizziness four hours after the injection, and that four hours later a feeling of warmth passed through his body, —at the same time a sensation of increasing strength;—no such effect was again reported.

15th:—*Third* injection. Cough still dry and irritating, to alleviate which the above-mentioned cough-mixture was dispensed.

29th:—To-day the *ninth* administration of C. was increased to $\frac{1}{450}$ grain; to relieve the increasing constipation the capsule containing fel bovis in combination with other drugs was dispensed.

July 6th:—The *twelfth* injection was in-

creased to $\frac{1}{300}$ grain. Cough very troublesome, especially in the morning, which only abated after the expectoration of a large quantity of muco-purulent sputum.

8th:—Slight burning in the urethra; urine did not contain any albumin; blood not present. The dose of C. reduced to $\frac{1}{450}$ grain. No appetite; nausea and vomiting co-exist now; extreme weakness developing; cannot sleep; dyspnœa has likewise become aggravated.

24th:—The *twentieth and last* injection. The patient has been losing ground: is beginning to emaciate; the muscles flabby, cough troublesome in the morning, abundant fetid sputum raised in the early part of the day. Stomach exceedingly irritable. The dulness has by this time extended over upper portions of both lungs, to the third ribs; the same condition present posteriorly, over the supra-spinous regions; over these areas the retraction of the chest-wall was excessive; moist râles were to be heard over upper lobes of both lungs. The treatment was from now on simply a palliative one.

August 7th:—Had been gaining a little ground. Alimentary tract in good condition and functioning properly; cough moderate; expectoration profuse.

31st:—Has been sick a-bed for four days; cough increased, sputum more abundant and decidedly malodorous; dyspnœa increasing, weakness extreme, and emaciation progressive.

Sept. 4th:—Confined to the house;—dissolution soon followed.

—CASE NO. 3.—

L.R., æt. 36; Russian; tailor. Had been indisposed for months, complaining of general pains, specially marked in chest; cough with bloody expectoration, and at times coughing up free blood; dyspnœa; loss of appetite, and constipation; had lost both in weight and strength.

Physical examination:—Expansion very limited; dulness over right apex, broncho-vesicular breathing accompanied by moist

râles. Heart sounds normal. Sputum contains bacilli; urine is negative. General treatment directed to digestive tract.

June 24th:—Injected $\frac{1}{600}$ grain of C.

29th:—The *third* injection contained $\frac{1}{450}$ grain of C.

July 1st:—Administered tannic acid and recurred to the original dose of C., as patient had developed a pulmonary hæmorrhage.

10th:—Sputum diminished in quantity, and blood no longer present in the phlegm. The general condition has decidedly improved. The *eighth* injection again increased to $\frac{1}{450}$ grain, which dose was at no subsequent time diminished.

17th:—The patient complained for the first time of a slight burning during micturition, and also of an increased frequency of urination. Received his *eleventh* dose; at the same time was given twelve minims of the deodorized tincture of opium during the twenty-four hours.

20th:—The urinary symptoms were of short duration; but having exposed himself unnecessarily, his pulmonary condition was aggravated, and another pulmonary hæmorrhage occurred, causing a loss of three ounces of blood.

22nd:—The thirteenth injection was increased to $\frac{1}{300}$ grain. Cough diminishing; condition fair.

24th:—Injected C. *for the last time* ($\frac{1}{300}$ grain.)

27th:—The urine passed during the night caused considerable burning; not so during the day; it also contained albumin to the extent of two per cent by volume. Heretofore the same had been absent all through. The urine was examined repeatedly: casts were not present. Otherwise the condition is better than at the beginning of treatment. The injections were discontinued at the importunate request of the patient; also because of the presence of albumin, which was undoubtedly caused by the Cantharidin. A tonic line of treatment was inaugurated,

and the persistent constipation of the patient attended-to.

Aug. 19th:—Another pulmonary hæmorrhage.

Jan. 27, 1892:—Had continued under treatment; no hæmorrhage occurred since last note.

Aug. 1st, 1892:—During this long interval had but seldom coughed; gained fourteen pounds in weight. The dyspnœa was less than at any time since invasion of the disease. The right apex still gives evidence of dulness; the breathing is harsh in character, but unaccompanied by râles. He is now working at his trade.

—CASE NO 4.—

C. Z., æt. 44; U. S.; carpenter. Had for some time been ailing; increased tired feeling, anorexia, nausea unattended with vomiting; bowels irregular in their action; cough with sputum, with which coexisted severe pains in the chest; dyspnœa developed recently; sleep has not been as sound as formerly.

June 19th:—Physical examination revealed a tubercular deposit in the left apex; bacilli being present in the sputum. Treatment directed toward alimentary tract; and injection of $\frac{1}{800}$ grain of Cantharidin.

22nd:—No improvement as yet perceptible; the second injection was given.

24th:—As the cough had in nowise diminished, small doses of morphine were administered.

26th:—The *fourth* injection was increased to $\frac{1}{400}$ grain. Cough is less than formerly.

July 1st:—The *sixth* injection. Dyspnœa has not abated any; cough increased again; bowels were more troublesome to relieve, for which was given *fel bovis* combined with *aux vomica* and *colocynth*.

6th:—The *eighth* injection increased to $\frac{1}{100}$ grain. General condition somewhat better.

8th:—Injected $\frac{1}{300}$ of a grain.

10th:—The quantity of Cantharidin reduced to $\frac{1}{400}$ grain, as the urine became

scalding in passing; no blood or albumin was present.

17th:—The condition for the past week has not been very encouraging: appetite almost nil; weakness and dyspnœa increased.

22nd:—Administered the *fifteenth* injection ($\frac{1}{300}$ grain).

24th:—The dulness over left apex has not diminished in extent, on the contrary, has extended further down; the breathing is now bronchial in character and accompanied with moist râles; yet the patient expresses himself as feeling better than at the beginning of the treatment; nevertheless he has emaciated, and is not as spry as earlier in the disease. The cough is less troublesome, but the dyspnœa none the less prominent. Bacilli still present.

· Patient passed from under observation.

—CASE NO. 5.—

I. W., æt. 16; U. S.; packer. Since one year has been subject to coughing-spells coming during the night and in the early morning; dyspnœa without any pain in the chest; appetite has been failing; coughing brings-on vomiting; bowels regular; night-sweats present; no temperature; pulse 90; has been losing flesh; weight at present but eighty-four pounds.

June 5th:—Physical examination:—Expansion poor; dulness over both upper lobes; bronchial breathing present. Inspiration in the right side is interrupted, and accompanied with râles. Anæmia is extreme. Injected $\frac{1}{800}$ grain of C., and gave albuminate of iron.

8th:—No change in condition; second injection of $\frac{1}{800}$ grain of C.

12th:—The fourth injection of $\frac{1}{800}$ grain of C. Cough is somewhat easier; appetite better than heretofore; sleep is not refreshing.

19th:—*Seventh* injection of $\frac{1}{800}$ grain of C.; condition is fair; night-sweats were controlled with camphoric acid.

26th:—*Tenth* injection. Is apparently

improving; coughs but little now; vomiting does not take place; yet there has been no gain in bodily weight.

July 1st:—To-day patient came back feeling very weak: cough increased again, expectoration profuse; appetite gone; he feels very sick; has lost four additional pounds in weight. The *thirteenth* injection administered.

8th:—*Sixteenth* injection, increased to $\frac{1}{500}$ grain.

18th:—No gain can be recorded since the 8th; was given his *nineteenth and last* injection, consisting of $\frac{1}{500}$ grain of C. Ordered hypo-phosphites and sent patient to the country, as treatment had been futile of any permanent good result. He subsequently died.

—CASE NO. 6.—

G. S., æt. 50; German; baker. The patient complained of cough, dyspnœa, and pain in the chest; of anorexia, bad taste in the mouth, pain in the stomach after meals, and confined bowels; weakness was extreme; otherwise no symptoms.

Physical examination:—Dulness over left apex; broncho-vesicular breathing accompanied by râles. On the right chest hyper-resonance was present; expiration prolonged and high pitch, unattended with râles.

June 24th:—Preliminary treatment was directed to digestive system: calomel. After the same had acted, dilute hydrochloric acid and fel-bovis capsules were administered.

26th:—The first injection: $\frac{1}{800}$ grain of Cantharidin.

July 6th:—Dyspnœa somewhat less, cough slightly easier. The gastro-intestinal tract in good condition. The *fifth* injection increased to $\frac{1}{450}$ grain.

10th:—The appetite is failing; coughing is not as easy as a week ago. *Seventh* injection of C. ($\frac{1}{450}$ gain).

17th:—No favorable change occurred during the last week. The *tenth* injection of C. ($\frac{1}{450}$ grain).

24th:—Improvement cannot be recorded; a diarrhœa had developed, which was controlled with tannic acid. The physical examination reveals an increasing area of dulness over upper left lung, with bronchial breathing. He had been injected *twelve times in all*; and as disease was not arrested, but on the contrary steadily advancing, this was discontinued. At no time was there any urinary symptom developed. A tonic and symptomatic line of treatment began.

Aug. 12th:—The ravages of the disease have been increasingly progressing. The condition of the patient hopeless.

—CASE NO. 7.—

A. B., æt. 59; Austrian; peddler. For a number of months the patient had been complaining of an intense headache, loss of appetite, nausea, occasional vomiting, and constipation alternating with diarrhœa; of dyspepsia, some pain in the chest, and coughing, which was spasmodic, occurring chiefly in the early morning and evening; of failing strength, sleeplessness and night-sweats.

The examination showed marked anæmia and great emaciation. The chest had both its apices infiltrated, as evidenced by the presence of dulness and decidedly diminished breathing; no râles present; over other portions of the lungs the air penetrated into the ultimate vesicles. The expansion in this case was almost nothing; urine was negative.

June 24th:—First dose of Cantharidin: $\frac{1}{800}$ grain.

29th:—Third injection increased to $\frac{1}{450}$ grain. The cough affected somewhat for the better; appetite remained absent; but the sleeplessness of the patient had improved. A diarrhœa had set-in, which was readily controlled after the taking of tannic acid.

July 10th:—The improvement noted at the above date continued for a week; a relapse then set in and the case is in the condition originally recorded.

13th:—The retrograde change continuing, C. was injected for the *ninth and last time* today. The physical examination showed increasing dulness over both apices,—the breathing becoming more bronchial in character, and moist râles heard. A general course of treatment given.

The patient subsequently passed from observation in a very pitiable state.

—CASE NO. 8.—

M. S., æt. 30; Austrian; carpenter. Since four months had been coughing a great deal, accompanied with a profuse expectoration; dyspnœa present and severe; pain over the entire right lung; a feeling of disgust for food;—constipated bowels; sleep very much broken and unrestful; night-sweats excessive.

Physical examination:—Emaciation marked; skin had a muddy color. The chest expansion was limited; dulness over left apex, broncho-vesicular breathing with crackling râles. Otherwise, over entire chest, sibilant and sonorous breathing was present. The inspiration was of much greater duration than expiration. Temp. 100°.

June 15th:—The Cantharidin treatment began: injection $\frac{1}{800}$ grain.

24th:—*Fifth* injection ($\frac{1}{450}$ grain),—which proved to be *the last*. Pulmonary condition in no wise favorably improved. This individual complained more than the others of pain over the seat of injection.

—CASE NO. 9.—

M. J. W., æt. 33; U. S.; stone-cutter. Had been coughing for 10 months, accompanied by abundant expectoration; no dyspnœa or pain in the chest was present at any time. The appetite is fair for farinaceous articles of diet; there is a decided disgust for nitrogenous foods of all kinds; nausea or vomiting not present; bowels irregular in their action.

Physical examination:—Both apices dull on percussion; breathing decidedly roughened; râles only occasionally heard; temperature 101°.

June 15th:—Injected $\frac{1}{800}$ of a grain of Cantharidin.

19th:—Asserts feeling better. *Third* injection.

22nd:—Temperature 102.4°. *Fourth* injection.

26th:—This day patient felt very weak; the dulness has extended further down from the clavicle. He has appreciably lost ground. Injected $\frac{1}{450}$ grain of C.

July 1st:—*Eighth* injection ($\frac{1}{450}$ grain). The cough is somewhat less. A diarrhœa had in the meantime developed, which was readily controlled with tannic acid. The patient was not again seen.

—CASE NO. 10.—

M. K., æt. 18; Russian; tailor. Since three months had been unable to do a full day's work; tired very quickly; complained of general pains over the entire body; of anorexia, pain over stomach after the ingestion of food, bowels very irregular; of night-sweats and of the loss of flesh. A very obstinate cough has been present all this time; the quantity of sputum has been various.

The examination of the chest showed dulness extending to the third rib on the right side; breathing bronchial in character, attended with coarse and moist râles.

The patient received, *in all, three* injections of $\frac{1}{800}$ grain of Cantharidin,—each without the least effect discernible,—and objected to any further painful procedure.

—CASE NO. 11.—

S. R., æt. 22; Austrian; tailor. Had been complaining of a dry, irritating cough for months (latterly sputum has become more abundant), and of an aggravating dyspnœa. The digestive tract was likewise troublesome.

Physical examination showed that the pulmonary lesion was located in right lung, upper lobe.

June 17th:—Injected $\frac{1}{800}$ grain Cantharidin.

22nd:—*Third* injection; stated feeling

easier, and as breathing with less difficulty.

26th:—The cough is again distressing. *Fifth* injection.

29th:—The sixth injection was increased to $\frac{1}{450}$ grain.

July 1st:—The treatment was discontinued, as patient objected to it because of its painfulness. Subsequent treatment with arsenic and iron, combined with appropriate expectorants, did not stay the course of the disease.

—CASE NO. 12.—

L. F., æt. 49; Switzer; carpenter.

June 29th:—Had been coughing since a year, muco-purulent expectoration, dyspnoea since 6 months; appetite is poor; bowels irregular; sleep was always good; never suffered with night-sweats.

Examined:—The left apex is dull on percussion; broncho-vesicular breathing present; likewise, crepitant râles.

Four injections were made, each containing $\frac{1}{600}$ grain of Cantharidin; and as the patient did not gain any relief from his symptoms, he discontinued his visits.

CONCLUSIONS.

The action of Cantharidin, as determined in the treatment of these cases, is, first, that of a locally powerful irritant, producing intense pain at the site of the injection, which often continued from twenty-four to forty-eight hours, and tumefaction; yet at no time was any suppuration developed; secondly, the general effect upon the mucous membranes (as shown in a mild stimulating effect upon the pulmonary mucous membrane), and a rather irritating effect upon the urinary tract (as shown either by the appearance of blood or albumin in the urine, or the production of a burning pain and an increased desire to urinate). The presence of albumin has been found without any blood or pain accompanying it.

The first condition could be modified by the use of cocaine; yet its continued use is hardly desirable. The acceptable stimulat-

ing effect upon the pulmonary tissue is attended with the more pronouncedly irritating action on the urinary tract; *the latter* can be modified by the administration of opium, which in turn has at times a deleterious effect upon the pulmonary lesion, but more generally causes gastric disturbance.

THE OBJECTIONS

to the use of Cantharidin are, that it has not a sufficiently beneficent action to compensate for the pain which its use entails upon the patient; and, secondly, it necessitates the repeated examination of the urine by the physician to detect its early deleterious effect upon the kidneys and the channels of exit,—as albumin and blood can occur before the burning or increased desire to urinate is manifested to the patient himself.

The largest admissible dose of Cantharidin was found to be $\frac{1}{450}$ of a grain; yet this did not make a favorable impression upon the tubercular condition as it existed in the lung. Incidentally one must notice that small doses of Cantharidin did not affect the diseased kidney of case No. 1 any more unfavorably than the others in whom there was no pre-existing renal lesion. The acute exacerbation of his chronic diffuse nephritis occurred also before and after the administration of Cantharidin.

The effect of tannic acid on the diarrhoeal discharges of these tubercular cases was quicker and more effectual than either that of opium or of bismuth. It was given in five-or-ten-grain doses, in capsule, once or twice a day.

For the night-sweats nothing operated as readily and as constantly as camphoric acid, when given in twenty- or thirty-grain doses, one hour before the onset of the sweat; no by-effects were produced,—the patient always awakening in the morning refreshed and rested, which was not always the case when the other anti-sudorifics were used.

Before concluding this paper, the author

would acknowledge his indebtedness to his assistant, Dr. JAMES WOOD, for his untiring zeal; and also thank Drs. McPHEE and MAISCH of the NEW-YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL Laboratory, for the large number of examinations of sputum and urine made.

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USES AND ABUSES OF ELECTRICITY IN GYNÆCOLOGICAL THERAPY.

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In this brief paper no attempt will be made to argue for or against any particular cell, battery, or other electrical appliance. It is assumed that the reader is acquainted with the fundamental principles which govern the application of electricity to living tissues, and with the distinction, both in nature and effect, between the galvanic and faradic currents. Without such knowledge, it would be foolish, if not criminal, to attempt to employ therapeutically an agent which is so potent for evil as well as for good. The statements which will here be made are based upon a moderate experience with electricity in both public and private practice, and may not coincide, in all respects, with the views of some whose experience has been much more extensive than my own.

The pelvic and abdominal organs may be brought into an electrical circuit through the cutaneous surface of the abdomen and the mucous membrane of the rectum, vagina, or uterus. Among the facts which should always be remembered as

AXIOMS

in connection with the use of electricity, are the following: Metallic contact of an electrode with the skin or mucous membrane should always be avoided when possible, unless a painful or cauterant effect is desired. I have found moist absorbent cotton the best material for covering electrodes,—the cotton being thrown away after being once used.

There are but few conditions which require or justify a current of high ampérage. Destruction of tissue and electrolysis may be effected with low ampérage in most of the cases in which such an effect is necessary. As the possibility of unpleasant results is increased with an increase in the intensity of the current, it would seem reasonable to use in all cases the weakest current consistent with the attainment of the desired end. The use of the current should be limited to a few minutes for each séance. Probably much harm is done by over-stimulation, electrically, of weak tissues. I have never found it desirable to apply a current continuously more than ten minutes, and seldom more than six.

Shocks must always be avoided. Very uncomfortable results may follow their production in sensitive women, women with weak hearts, etc. They may always be avoided by the use of a rheostat, the current being applied and withdrawn with imperceptible gradations.

BEFORE BEGINNING

a course of electrical treatment, one should have a clear idea of what is to be expected or desired from such treatment. While it is not insisted that the following are the only therapeutic functions associated with electricity, they are nevertheless the ones which will be chiefly found useful by the gynæcologist.

The galvanic current is astringent, caustic, electrolytic, nerve-and-muscle-tonic, and anodyne.

The faradic current is nerve-and-muscle-stimulant, and tonic, and anodyne.

The expression of my own faith is, that electricity is a most valuable adjunct in gynæcological therapeutics. It is sneered at as useless or dangerous by some, chiefly by those who know nothing or very little about it from a practical standpoint,—that is, from actual experience. It is advocated almost as a panacea for all pelvic and abdominal disease chiefly by those who are

not surgical in their predilections. It is needless to say that narrowness and prejudice characterize the positions of both these parties. I have seldom used electricity to the exclusion of other medicinal treatment, and I have frequently abandoned it for purely surgical procedures.

The most obvious and possibly the most common condition calling for electrical treatment at the hands of the gynæcologist, is lack of nerve-and-muscle-tone, or at least what is generally attributed to such a cause. This condition finds its illustration in subinvolution of the uterus; relaxation of the uterine muscle and ligaments, resulting in displacements, etc.; relaxation of the vagina, and its consequences; and constipation. It may be associated with hypertrophy of these organs, especially connective-tissue hypertrophy; or it may be associated with atrophy and fatty degeneration. Many cases in which this condition is present derive marked benefit from the judicious use of electricity; many others finally require the knife. On the whole, electro-therapy is an advantage for such cases; for if it does not cure, it demonstrates to the patient that something more radical is necessary, and, in many instances, an operation will be permitted which would not be considered at all as long as electricity remained untried.

It is inadvisable to lay down rigid rules for the treatment of this condition. My own method is as follows,—allowing for variations when necessary.

SUB-INVOLUTION OF THE UTERUS.

Negative electrode upon the abdomen. Positive electrode within the uterus. (*Note*.:—The question as to the proper material for intra-uterine electrodes is not now to be discussed at length. It may be said, however, that the only objection to platinum is its expense. All metals except gold and platinum are corrodible at the positive pole. Carbon electrodes have been recommended; but their brittleness and liability to break within the uterus would seem to me a seri-

ous disadvantage. I have frequently used an electrode composed of an aluminium shaft with properly insulated handle, and a steel tip. The latter has been made for me in several sizes, which are used according to the caliber of the uterine canal. For an abdominal electrode I prefer Martin's metallic hollow disc with parchment base,—the latter being moistened by water, with which the disc is filled.)

Séance of six minutes,—the electrode being moved from one portion of the endometrium to the other. Ampérage 50 to 100.

There is no objection to a moderate degree of cauterization of the endometrium; in fact, cauterization will favor absorption and involution. Treatment should be given two or three times weekly.

RELAXATION OF THE UTERINE LIGAMENTS AND THE VAGINA.

Large negative electrode upon the abdomen. Positive electrode, cylindrical in shape, and covered with moist absorbent cotton, in the vagina. Séance of six minutes. Ampérage 50 to 75.

Or, the faradic current may be used,—the bi-polar electrode being introduced into the vagina.

This means of treatment is often of decided value, temporarily at any rate. Of course, it is not to be used to the exclusion of other measures, in cases in which displacements of the uterus are associated with relaxation of the tissues.

CONSTIPATION.

The faradic current is especially indicated for this condition when the latter is due to lack of tone of the muscular coat of the rectum or other portion of the intestinal tract. It will be self-evident that the electrode which is to be introduced into the rectum must not be too large, and must be sufficiently curved to conform to the curvature of the rectum; also, that the sphincter ani should be relaxed to a moderate degree, and that the rectum should be free from fæcal matter. Violent contractions of the intestines should not be produc-

ed; but moderate ones may be produced throughout the entire intestinal tract. If the constipation arises from causes *other* than impairment of muscular tissue, its cure will not usually be found in electro-therapy.

Another valuable function of the electric current is to be found in its

ASTRINGENT AND CAUSTIC PROPERTIES.

The profession at large does not generally appreciate the importance of this fact. The conditions in which electricity is eminently indicated for astringent and caustic effects are

ENDOMETRITIS AND ENDOMETRIAL HÆMORRHAGE from whatever cause. The galvanic current *alone* is applicable; and the positive pole should always be passed within the uterus,—the cavity being first dilated, if necessary, for the ready introduction of the electrode. The circuit being closed, the electrode should be moved-about over each portion of the endometrium. (This does not mean that every portion of the endometrium is necessarily diseased. It is only an evidence that our diagnosis of endometrial troubles is still crude and inexact. Not until endoscopy is adapted to the endometrium as it has been to the urethra, can we hope for exactness in this direction.)

The intensity of the current should vary with the condition to be treated. If there is merely uterine catarrh, an astringent effect alone will be required. In such cases the ampérage should rarely exceed 75; nor should the duration of the séance exceed six minutes. If there is bleeding of the endometrium from an inflammatory condition or from myomata, the mucous membrane should be cauterized,—the ampérage required being sometimes 150 or 200, rarely more than this.

Upon this subject battles are constantly being fought between electricians and those who do not believe in them or their system of therapy. The former have erred, as it seems to me, in making this use of the electric current too occult and mysterious; and

in denying, or practically denying, that evil may come from the caustic use of an electric current, especially if electro-puncture has been practiced,—a procedure which I have never felt called-upon to adopt. If the shrinking of myomata and the cessation of hæmorrhage from them is simply due to destruction of tissue by heat with subsequent contraction and impaired nutrition, I see no reason why it may not be applied to the endometrium with more efficiency and greater safety than by puncture of the diseased structure. Then, if sloughing should occur, the uterine canal would furnish an efficient avenue for drainage; especially if a rubber stem or a strip of iodoform gauze were placed within it.

The treatment of

HÆMORRHAGE

due to uterine cancer or myomata, by the cauterizing electrode, is in some cases wonderfully efficient. The work of BYRNE and others in effecting permanent cure of cancer in many cases with the galvano-cautery furnishes striking evidence of the possibilities of this method of treatment.

In the treatment of bleeding myomata, the results are likely to be permanent only as the new growth is near the mucous membrane and can be subjected to the destructive influence of the heat generated by the current. Hence, for intra-mural myomata, this form of treatment is better adapted than for those which project extensively into the peritonæal cavity. I have as yet seen no evidence that the improvement in the condition of women suffering with uterine myomata in which hæmorrhage is a marked symptom (the improvement consisting in cessation of hæmorrhage and shrinking in the size of the tumor, and the treatment consisting in the use of a galvanic current of high intensity,—the positive electrode being within the uterus), is due to anything more than the impairment of nutrition which is produced by the action of the caustic electrode upon the uterine mucous membrane

and the structures which are contiguous to it.

THE ANODYNE EFFECTS

of both faradic and galvanic currents of electricity have long been appreciated by physicians in both general and special practice. They are of especial service to the gynæcologist,—dealing, as he does, with so many affections in which pain is a prominent symptom. Thus, there may be pain from peritonæal adhesions either in the abdominal or pelvic cavity, from the pressure of tumors and exudates, from the inclusion of nerve-endings in ligatures, from uterine displacements, from imperfect nutrition of the pelvic organs, from retention of blood or glandular secretions, and from various other causes.

The determination of the proper current to be used to relieve pain in a given case must be largely a matter of experiment. In some cases the pain may be relieved equally well by *either* current; in others a selection must be made. In a general way, it may be said that the more superficial conditions are more efficiently treated by the faradic current; while the deeper ones—especially those in which there is an inflammatory element with adhesions, exudate or fluid accumulation,—are more efficiently treated by the galvanic current. In the last-mentioned conditions I suppose the passage of the galvanic current is attended by more or less electrolysis, with absorption, and consequent diminution of tension and pressure. If a cauterant effect be produced, there are also the revulsion and the counter-irritation which result from the application of heat, as well as the contraction of tissue and impairment of nutrition which accompany cauterization.

In applying the galvanic current for anodyne effects, one electrode is to be placed within the vagina and the other upon the abdomen. I have not found the assertion that the positive pole is essentially and absolutely the sedative pole borne out by my

experience; as I have many times produced equally satisfactory results, so far as relief from pain is concerned, with the negative pole in the vagina. The séance should be continued from six to ten minutes, and the ampérage should always be low,—from 20 to 40.

When the faradic current is indicated for anodyne effects, the electrodes may be located the same as for the galvanic current; or, if the seat of pain is contiguous to the vagina, the bi-polar electrode may be introduced within that cavity.

The foregoing are the principal indications in which it has seemed proper to me to make use of electricity in gynæcological therapy. So far as I know I have never had any accident from its use. I mean, of course, any accident of a serious character. An agent which has the possibilities of such serious consequences from its use must, however, always be used with the greatest circumspection; especially in view of the fact that treatment is usually given in the doctor's office and must be followed by more or less exertion on the part of the patient.

Therefore I should say that

THE ABUSE OF ELECTRICITY

by the gynæcologist would consist in prolonged séances, in high ampérages, in the frequent production of painful effects, and—for me at least—in the practice of electro-puncture. Electro-puncture in the hands of certain skillful experts has been sometimes followed by excellent results; and therefore I do not feel justified in condemning it unqualifiedly. But as I have obtained good results without it, I have never cared to expose my patients to the additional risk involved in its use, be that risk large or small.

I think another abuse in electricity consists in its use after it has ceased to be beneficial; or in cases in which, after a few trials, no benefit is perceptible. In such cases, it seems to me that a consultation with a fair-

mind surgeon is indicated, if the case be susceptible of surgical treatment. The electrician has had his say, and he should not prejudice the case by further experimentation.

85 Madison Avenue, NEW YORK CITY.

FURTHER EXPERIENCE IN THE TREATMENT OF INOPERABLE CARCINOMA UTERI WITH PYOKTANIN.*

By H. J. BOLDT, M.D.,

Professor of Diseases of Women in the NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL; Gynæcologist to ST. MARK'S HOSPITAL and the GERMAN POLIKLINIK; Consulting Gynæcologist to BETH ISRAEL HOSPITAL; etc.

Since my report on the action of Pyoktanin (blue) in cases of inoperable cancer of the uterus, several months ago (†), I have been in a position to observe nine additional cases for periods of three months and more; thus making a total list of 13 patients upon whom the treatment has been thoroughly tried.

All my patients were absolutely beyond radical treatment by means of hysterectomy: in all, the parametria were infiltrated and the uterus practically immovable; the vagina was involved in six cases; the disease extended to the bladder in one patient. All the patients had irregular hæmorrhages to a greater or less extent, and bleeding took place on manipulation during the examination. Eight patients had more or less profuse, offensive, irritating leucorrhœa. Five patients were emaciated from the pain which was caused by the neoplasm, and from the hæmorrhages.

The treatment in the last seven cases treated, consisted in a very thorough curetting under the usual antiseptic precautions, and the packing—with Pyoktanin gauze—of the cavity made with the sharp curette; the injection of freshly-prepared Pyoktanin solution (1:300) in numerous places, each puncture receiving $\frac{1}{2}$ to 1 gramme [8 to 16 minims] of the solution.

The gauze was removed after 48 hours, and the pure powder placed in the cavity, after first having injected from 2 to 3 grammes [32 to 48 minims] of the solution into the substance of the uterus. Then an ordinary non-absorbent cotton tampon was introduced, to retain the powder and prevent soiling of the clothing.

The tampon was removed on the second or third day; a copious douche of a 1:2000 sublimate solution was used, and the treatment was proceeded-with as previously.

I wish here to state that I found a 1:100 solution often too painful, although in my previous paper a different view was expressed; also numerous points of suppuration were produced by this strong solution. As to results, they have on the whole been fairly satisfactory: only in two of the 13 cases did the disease progress; in all the others no such observation was made; the disease remained stationary. The *retrograde* process described by other observers I have not been able to confirm in any of my cases, although the appearance invariably improved, inasmuch as the surface looked clean and had a healthier appearance.

Symptomatically, all patients improved, with the exception of the two cases in which the neoplasm progressed; yet the progress in the patients who are still under observation and treatment is much slower than it would be if the disease were left to pursue its course without this treatment.

From such observations, then, I think we should have the encouragement to continue with the use of the remedy; especially as some reliable observers state that the disease does not only remain stationary, but becomes retrogressive or is even cured.

51 West 52nd St., NEW YORK CITY.

STRONTIUM BROMIDE, according to Dr FÉRÉ, *accumulates* in man in considerable quantity; it can be found in the skin, the liver, the spleen, the kidneys, the brain, and the muscles; its elimination with the urine commences later than that of potassium bromide.

(*) Read before the SURGICAL SECTION of the NEW YORK ACADEMY OF MEDICINE, June meeting.

(†) See MERCK'S BULLETIN, January, 1892.

REMOVAL OF A SYRINGE-NOZZLE FROM THE BLADDER, UNDER COCAINE.

By SAMUEL LLOYD, M.D.,

Visiting Surgeon RANDALL'S ISLAND HOSPITALS, New York.

Some weeks ago, Dr. C. M. O'LEARY called me to see a widow, about 35 years of age, who had of her own volition undertaken to employ a vaginal douche; but instead of the regular vaginal nozzle she employed the rectal nozzle, and, as she supposed, introduced it correctly.

On withdrawing the tube, the nozzle was left behind, and, on the supposition that it was in the "womb," she sent for her physician. Knowing her to be a nullipara, he was astonished at hearing that the hard-rubber nozzle of a syringe was in the uterine cavity; and a vaginal examination revealed a firmly-closed os.

It was therefore supposed the nozzle had slipped off the tube and down the closet

fore, after several seizures had failed to bring it into position for extraction, I determined to make a digital examination to determine the character of the object and the best method of procedure for its extraction.

A few minims of a four-per-cent solution of cocaine were thrown into the urethra, and a pledget of cotton saturated with the solution was laid into the meatus. After allowing about three minutes for the establishment of anæsthesia, I introduced my little finger into the meatus gradually, until I had dilated it so that it admitted the whole digit easily; the index finger was then gradually worked through, which caused very little, if any, pain.

This enabled me to make a careful exploration of the bladder, which was found partially filled with water; while the syringe-nozzle was distinctly felt lying at right angles to the axis of the body,—the two

SYRINGE NOZZLE—FULL SIZE.



(a. a.—Calcareous deposits.)

without being observed, until two days later, when she again sent for her physician and complained of a very severe *ardor urinæ*, making micturition so painful that she put it off as long as possible. The doctor then suspected that the missing nozzle might be in the bladder, and on examination he found the meatus red, tender and inflamed. He then introduced a searcher and struck a hard substance in the bladder. He therefore concluded that the nozzle had been inserted into the urethra instead of the vagina; and that, on attempting to remove it, a spasm occurred, the nozzle was pulled off, and escaped into the bladder.

When I saw the patient, about nine p.m., she was in an extremely nervous state. Exploration of the bladder soon revealed a foreign body of some kind; but it was impossible to seize it with any instrument so as to bring it down into the urethra. There-

ends being caught in the mucous folds. Of course, in this position, no instrument could extract it; as it would only grasp it in the middle and draw it down against the neck of the bladder, when it would necessarily be arrested. By passing my finger up, I was able to reach the point where the end of the nozzle was caught in the anterior bladder wall; and then, by moving it about for a second in different directions, I was able to disengage it and carry this end directly up to the fundus. This brought the end that had been caught on the posterior bladder wall against the base of my finger at the neck of the viscus.

I now arched my finger slightly, allowing the urine to escape along it, and very gradually withdrew,—taking care that the end of the nozzle remained between the floor of the urethra and my finger as the escaping urine allowed the bladder walls to contract,

forcing the nozzle slowly along the urethra. The finger was withdrawn enough now to allow of the passage into the bladder of a small pair of lithotomy forceps along its sides without further dilatation of the sphincter. The nozzle was thus readily grasped and extracted.

There were absolutely no after-symptoms,—no cystitis, incontinence of urine, or anything else attributable to the foreign body

in the bladder and the manipulation for its removal.

Although this hard-rubber nozzle was only retained in the bladder two days, it is interesting to note that the polished surface is already eroded and two points of phosphatic deposit are noticeable, as is well illustrated in the accompanying cut (see drawing on page 484).

24 West 50th St., NEW YORK CITY.

MEDICINE ABROAD;

AS REPORTED BY OUR FOREIGN STAFF.

European Editor: H. BAILLON, M.D.,

Professor in the "Faculté de Médecine de Paris"; President of the "Société Linnéenne de Paris"; formerly Professor of Hygiene at the "École Centrale des Arts et Manufactures"; etc., etc.

PROFESSIONAL SOCIETIES;

THEIR WORK AND INFLUENCE.

{ Merck's Bulletin Office, 12 Rue Cuvier,
Paris, August 15, 1892.

In France the whole medical profession have their eyes constantly fixed on the

ACADEMY OF MEDICINE.

The title of member of that Academy is a strong commendation in the public eye, at Paris, in favor of the physician who is looking for patronage, even when he merely belongs to the Academy as a free Associate. In the provinces he enjoys likewise the same advantage, and the title of Correspondent of the Academy is equivalent to an augmentation—sometimes considerable—of his fees. We may add, and without malice, that there is quite a number of physicians who publicly sneer at the Academy, and yet are trying by every means to become connected with it by some title or another. Some of these wait long for their turn to come, and do not give up hope; they often manage to be elected in the end.

"Academician"—quite generally speaking—is a title of great potency to a certain public, who is pretty much in the dark as to the distinctions existing between the Academy of

Medicine and the French Academy whose only pursuit is literature, and the Academy of Inscriptions, devoted to the study of old medals and ancient monuments, and the Academy of Moral Sciences, where, it is said, politics and philosophy are concocted, and the Academy of Sciences, where mathematicians, chemists, naturalists, navigators and other savants convene. There is even a section for Medicine and Surgery in the Academy of Sciences; but it consists of only six members, some of them not practicing physicians—as, for instance, MAREY and BROWN-SEQUARD. On that account the title of member of the Academy of Sciences, section of Medicine and Surgery, is more highly valued than that of member of the Academy of Medicine.

It may perhaps not be known in America that there is a project afloat among certain members of the Academy of Medicine to incorporate it into the great body called the "Institute." It is a proposition which has been publicly set forth by Prof. PROUST. If the wishes of that excellent gentleman were realized, he would have a right to wear, on ceremonial occasions, a coat embroidered in green, instead of a dress-coat decorated with violet and gold in which he is entitled

to deck himself out at present. But the ordinary public hardly appreciates these differences. The title of "Academician" is the acme of distinction, and commands attention to every word that comes from the mouth of its possessor, whatever be the color of his embroidery.

As soon as a man of science becomes known, as soon as he produces some meritorious work, his letters and journals are addressed to him with the epithet: "Member of the Academy," although he may not belong to any academy whatever. You will already have noticed, from my previous reports, that I have given way to the general custom. I have written at length about the discussions of our academicians relating to pleurisy and thoracentesis. And why? Certainly not from any sort of fetichism, but because these questions are of interest to the medical profession at large; because they were discussed by men of the highest standing and whose opinions may be listened-to with profit wherever the healing art is practiced. When, however, as at present, no great question is being agitated, the medical interest is directed elsewhere; and you will therefore allow me to look-about for

SEASONABLE SUBJECTS,

wherever and under what names such may be found; even if I shall have to resort to some obscure hospital or to the most modest conference of medical men. There a question may be broached which will make its way around the world, after having slowly grown and ripened.

Such was the destiny of the Biological Society of Paris, which culled the first-fruits of all the great discoveries of CLAUDE BERNARD, and which is still a centre of study of the first order. It is there that, under the lead of Prof. CHAUVEAU, are agitated at the present day the most important

QUESTIONS OF MICROBIOLOGY.

STRAUSS shows there by new, self-devised methods of staining what it is believed

may be called the vibratile cilia of the Schizophytes (he uses ZIEHL's fuchsine solution diluted with 3 or 4 parts of water). GLEY and CHARRIN write on the habitats of microbes; they remind us that the bacillus pyocyaneus has been detected in air, in water and the soil, in the bodies of fifteen animals; that plants possess a far greater power of resistance to the germ as well as its products. M. TREILLE combats the ideas of M. LAVERAN on the specific character of the flagella and the flagellate bodies in the blood of persons affected with malaria, and declares that he has observed these bodies in the urine of persons suffering from hæmaturia; but M. LAVERAN rejoins that he considers null and void such assertions as are in contradiction to what has been observed by all the physicians who have been studying the hæmatozoa of malaria during the last ten years. FÉRÉ points out the danger of prescribing pilocarpine in the treatment of epilepsy. CHAMBRELENT compares the serum of the blood of albuminuric eclamptic patients with that of the blood of non-albuminuric eclamptic patients, and demonstrates that the serum of the latter is considerably less toxic. LABORDE relates his experiments with the alkaloids of Quinquina cuprea, the curious results of which we shall recapitulate on some other occasion. Jointly with ROGER, CHARRIN sets forth the results of his observations on the weakening of the virus in the blood of vaccinated persons. VINCENT gives an account of his experimental researches on strepto-typhic symbiosis, the symptoms of which nearly always forbode a fatal termination in man, and probably also in animals. REMOND demonstrates that the bladder may be infected by schizophytes proceeding from the urethra or the kidneys, and also by those existing in affections of the surface of the body. GALEZOWSKI shows that by magnifying the retinal ophthalmoscopic images with the aid of an apparatus of his own invention, alterations in the blood-vessels are detected which

had escaped observation in the ordinary image. It may be seen from this, that researches are being carried-on in many medical directions, and which practitioners may, according to their aptitude and taste, turn to account in perfecting their knowledge.

There is in Paris a

SOCIÉTÉ MÉDICALE DES HÔPITAUX,

which does not in any wise fall behind the Biological Society in activity. Its present president is DR. DESNOS, who, in his youth, was one of the luminaries among the hospital internes, and who now is a member of the Academy, section on therapeutics. He exerts a powerful influence on the transactions of the society.

TALAMON there clearly shows that erysipelas is not, as usually accepted, a general infectious disease at the start, and that a specific microbe produces at first a local disease in the part where it is lodged. If the remainder of the system become affected ulteriorly, he asserts that this arises from the invasion and the mobilization of the microbes, or from the penetration of the absorbed toxins. He therefore sprays, by means of a hand atomizer, the local centre, and particularly the face, with a 1:100 ethereal solution of corrosive sublimate,—of course with due precautions, and taking into account the thickness of the erysipelatous patches, their spread over the sound parts, and the depth of the cutaneous infiltration.

FÉRÉ and VOISON express entirely different opinions on the toxicity of the urine of epileptics. The one maintains that the toxicity increases during the convulsive paroxysm and the period of psychic excitation; the other denies this.

HUCHARD exposes, by close observation, all the danger of administering digitalis in cases of cardiac affections where there is observed what has been called the "alternating coupled and tricoupled rhythm," a rhythm often unrecognized, because it is of short duration and may be confounded with the irregular

and non-cadenced arhythms. In such cases digitalis may produce rapid or sudden death, with cyanosis and cardiectasis.

BABINSKI reports on a peculiar hysteric paralysis which he terms *systematic*—to indicate thereby that it relates only to one or several of the various systems of movements which can be executed by the same group of muscles. According to him, the affection is evidently hysteric, because of the integrity of the tendon-reflexes and of the electric contractility, and also by reason of the peculiar demeanor of the patients and the sensitive disturbances observed in the inferior extremities.

VARIOT and RENDU observe in chronic articular rheumatism a symmetry of the morbid manifestations, which, they think, confirms the theory that chronic rheumatism has a spinal origin. They bring out the complete resemblance which exists between the lesions of subacute chronic rheumatism and certain medullary arthropathias.

We have even heard, in a society very different from the preceding ones, a subject discussed which undoubtedly will interest our readers,—that of

THE BACTERIUM COLI

and its ætiologic value. This association is the "CONCOURS D'AGRÉGATION DES FACULTÉS DE MÉDECINE."

(You are aware, probably, that in France the professors of the medical faculties of the state are chosen by their colleagues, by vote. The "agrégés" [associate professors], who act, in brief, as the substitutes of the regular professors, and who take part in examinations and deliver complementary lectures, are, on the contrary, nominated on competition. This summer, competitive examinations were held at Paris for all the branches of medicine, and also for all the faculties of the country. These competitions are at present the object of violent criticism. The candidates not elected have submitted to the journals, to the ministers, and even to the courts, complaints and protests, which

even prevent just now the nomination of new associates. There have been rumors even of frauds, of iniquities; and, no doubt, matters have been exaggerated on both sides.)

Be it as it may,—in the competition for admission as associate professor of medical natural history, Dr. Roux fortunately dealt with the question of bacteria, a matter which he had long studied from a practical point of view, in connection with the hygiene of the city of Lyons. He availed himself of that occasion to set forth in full his own views and those of Dr. RÖDER, his collaborator, on the special nature of the bacterium coli. There is, for him, no specific difference between this micro-organism and the Bacillus of Eberth—the latter being but a simple modification of the coli form. Experimentally, infections are produced in animals—guinea-pigs and rabbits—by means of cultures of the Eberth bacillus. There is obtained a congestion of the intestine, swelling and even ulceration of Peyer's patches, tumescence of the spleen, sometimes fibrino-purulent exudations on the surface of the abdominal viscera. Well and good!

By inoculating cultures of bacterium coli, derived from various sources, the same lesions are provoked. According to the dose, we can obtain an elevation or depression of temperature. By injecting into the blood-vessels cultures either of bacterium coli or of Eberth's bacillus, we can produce in rabbits identical affections, characterized, at full maturity, among others, by a continuous fever, practically of the same turn. Furthermore, the activity of the bacterium coli, as a rule, appears greater than that of the Eberth bacillus; however, the lesions are identical, the functional disturbances are similar, and present the same forms. The choleriform type is not peculiar to the bacterium coli, nor is the febrile type peculiar to Eberth's bacillus, and belongs fully as much to the disease produced by the bac-

terium coli. Both schizophytes have been found to produce the same startling accidents, with collapse and rapid death. Under suitable conditions of dose and virulence, febrile affections, more or less intense and durable, have been induced, and there has been observed particularly a form continuous and prolonged in type, which Roux considers as analogous to the typhoid fever of man.

To the preceding facts may be added that LESAGE, SEVESTRE, MACAIGNE, have several times found the bacterium coli in the lungs during the last grippe epidemic; that frequently the bacterium coli existed all alone in the lungs affected with bronchopneumonia; and that, as you know, the same microbe abounds in the organism affected with cholera—Asiatica or nostras, infantile cholera, infectious diarrhœas, etc.

You see that rich mines of useful and varied observations are opened-up here, which every physician may profitably explore, and upon which I might dwell more at length, if one or the other thereof would be of interest to the physicians of the New World who have at heart the progress in diagnosis, ætiology, and therapeutics.

I just consulted, on this subject, one of our most celebrated official physicians, who does not turn up his nose at any progress or novel theory, but who, nevertheless, has a decided propensity to treat as charlatanism everything that does not emanate directly from official instruction. As I shall take care not to cite his name I am at liberty to tell

A RATHER PIQUANT LITTLE ANECDOTE

dating back a fortnight. A physician pretty slightly treated by him—of which affair I shall presently speak—is pre-eminently an “independent;” I know him to have made very deep and opiniative studies; he is an investigator in the strongest acceptance of the word, but, at the same time, extremely timid, which always prevented him from becoming professor and compet-

ing for official positions or professorships. Seeing me engaged in an intimate conversation with the celebrated practitioner who is at all times inveighing against charlatanism, he said to me: "Do not put any confidence in N.; however elevated may be his position, I cannot refrain from considering him a charlatan." The well-known dictum, *invidia medicorum*, was coined in the Old World; and you will easily understand that, while laughing in the sleeve at my mutual opinions of the two antagonistic physicians, I attached little consequence to what they said one about the other. Progress recognizes no confines, and am I not right to hail it wherever it manifests itself, recalling to mind the pithy saying of our greatest comical writer: "I take my good things wherever I find them"?—But it is time to take leave of the official world for a while.

Have you heard that there is at Paris an association called "MÉDECINE NOUVELLE," with its weekly publications, its meetings which are held in the Trocadéro Palace, its

ELECTRO-THERAPEUTIC AND METALLO-THERAPEUTIC CONSULTATIONS;

for that is named, in brief, the basis of that "new" therapeutics which is scoffed-at or reviled by the official centres. I hope it will be acceptable to you to hear something of the opinions of the men who direct these publications. They establish the correlation which exists between the two magnetic and electric fluids. In a number of cases, they declare that both fluids have similar effects.

Dr. CH. PINEL—a physician quite celebrated in the annals of French medicine—subjects a young girl to hypnotic sleep, and she goes, he alleges, at his volition, through a series of reflex movements or of spontaneous contractures, according to the places excited. Is not, he asks, the transfer of a paralysis through magnetism a proof of the efficacy of that science?

Here, again, in another instance, are two patients: one is affected with gastralgia; the

other is paralyzed in the left leg. Through the magnetic transfer the paralysis is imparted to the gastralgic patient, and *vice versa*. Then we see the gastralgic person turn paralytic, and the paralytic one going about complaining of his stomach. Is not this, the experimenter asks, a fact worthy of remark? And is it not surprising to see medicine revolt against such procedures?

In electro-therapeutics, (we continue quoting) nervous disorders are cured without the aid of any internal agent; tumors are removed without surgical operation, without injury and without endangering the life of the patient for a single moment. The results are certain, infallible even! And yet, one does not want to make use of them. Asthma is cured, as well as other neuroses, through dynamodermia or metallo-therapy; this has been proved these last ten years. Nevertheless, the medical profession continues to purge and depurate, to lull the nervous system of the patients to sleep by means of opium and the virulent and toxic solanaceæ, of which the pharmacies are full. Is this the progress in science which should be encouraged, or the routine which ought to be deprecated, since, despite all these successful phenomena, no one turns them to account but *a few discreet men* who decide to shun the beaten tracks of the scholastic practice, in order to address themselves to the sole and true science—that which only assists Nature, without counter-acting her?

"Come with me," they add, ironically, "poor hopeless outcast, come thou that sufferest; we shall root out thy pain and give thee rest. If thou art heart-broken, and thy mind is distressed, the bare memory of thy pain is a suffering more dreadful than all the prospective torments of hell. There, take this potion, and thou wilt fall lifeless into a trance of pleasing dreams, into a delirium of the most blissful reveries. Thanks to our philter, thou wilt no longer think, nor suffer. Thy sufferings will still be the same, the

wounds of thy heart will bleed and ulcerate at leisure, but thou wilt be merely a mass of inert matter. Thy faculties will follow the delightful course of so delirious an intoxication that thou imagine thyself to live."—Such is the proposition, they assert, of the routine whose philters consist of morphine, ether, or cocaine.

But the school of that "MÉDECINE NOUVELLE" does not attempt to overcome the effects by such means; the pain element is not alone combated, and

THE PATIENT IS NOT OVERPOWERED, intoxicated, stupefied, crushed, by therapeutic practices. It consoles, relieves, and cures the sufferer. There is no need of throwing him into a worse condition to cure him. The "nouvelle médecine" provokes no dreams, nor ecstasies, but procures a sound and restorative sleep, during which he regains his lost strength and exhausted health. To the degenerated it accords the vital equilibrium which is born of the reconstitution of the nerve-cells, atrophied by inheritance. To the overworked it restores the energy by inducing restful nights and setting right the brain-substance. To the organically injured it gives passiveness by diminishing the nervous tension caused for the most part by evolutive exaggeration. To all it renders the same important service of *precluding medicamentous intoxication*.

It does not attempt to overcome effects without removing the cause, and, above all, without triumphing over it. Herein—such is the conclusion—lies the difference between the *scholastic* medicine and the *new* medicine. The effects of the one become morbid causes; those of the other become causes of cure.—The actual position of science is grand, sound and strong with the treatments of the "new medicine;" but science is still in a rudimentary condition in the scholastic medicine, because it continues

THE OLD AND PERNICIOUS USE OF POISONS which act as much, if not more, on the pa-

tients as on the disorder. And Dr. VERNON writes without hesitation: "The question is not, to provoke diuresis or diarrhoea, under the fallacious pretext of purifying the complexion. The question is not, to induce more or less abundant perspiration in order to 'depurate'—in the scientific acceptation of the word—the organism of the patient. No: that would indeed be too easy! The point is, to employ a therapeutic agent which can impress the *entire* system and stimulate *all* the secretions, give tone to all the tissues, and increase, simultaneously with the augmented cutaneous activity, the functions of general absorption. This secretory and specific agent—the only one which increases the forces instead of lowering and irritating them, is the metallo-therapy, the *dynamic Electro-Burguism*."

It is likewise outside of official therapeutics that I find a tribute of praise for *Eucalyptus* and *Eucalyptol*, of which I shall speak before long, if that medication may interest our readers. In the meantime, allow me to make you acquainted with the man—dead, alas, and in sad condition—who had long been called, in France,

THE FATHER OF THE EUCALYPTUS.

His real name was PROSPER RAMEL, a remarkable character and a daring voyager, who twice made a tour round the world, a veritable "BUSCHMANN." The chief object of his travels in Australia was the study of eucalyptus,—destined, in his opinion, to become a universal medicament. He could easily be tracked, because everything about him smelled of oil of eucalyptus. When walking, he leaned upon a cane of eucalyptus; his mattress was stuffed with eucalyptus leaves; he washed himself every morning with water to which eucalyptus had been added, and in the evenings he took a potion flavored with eucalyptus. To him this providential plant ought to suffice for the treatment of all diseases. In Algiers he established extensive plantations, and then the question assumed a more serious aspect.

It is certain that a great many marshy localities infested with malarial fevers owe to him their deliverance, at least to a considerable degree, from those baneful affections, the fearful accounts of which are, perhaps, too much at the present day forgotten. The medicament itself has somewhat fallen into disuse in France. Though frequently highly recommended against pulmonary tuberculosis, it has not been generally appreciated and employed. It did not kill the "microbe;" hence the little favor accorded to it in general. You will, at some future occasion, see that it is another "independent," among us, who is trying to resuscitate its use.

You are already fully aware that, despite all pains to conceal the fact,

CHOLERA IS RAPIDLY ADVANCING

from the east of Europe, and that all the quarantines taken together will hardly be able to debar its course.

At the same time and by a singular coincidence—if, indeed, we may call it so—the epidemic affections prevailing in the vicinity of Paris, assume an absolutely *choleric* character. I have already noted that at a clinical conference which occasioned a good deal of excitement, Prof. PETER declared that

CHOLERA NOSTRAS

was identical with Asiatic cholera, that the symptoms were the same, and that the same characteristic microbes were found. Other physicians, and some of the greatest eminence, maintain an entirely opposite opinion. They do not contest the identity of the morbid symptoms; but they declare that cholera nostras is a wholly different affection, owing to the mode of transmission.

In fact, one entire side of the suburbs of Paris is infected, and probably in consequence of the deplorable hygienic conditions. Hygiene is the part of medicine most ignored and least cultivated in France. But from the outskirts of Paris the disease

extends but little and very slowly, within a relatively very narrow zone. Some patients, severely attacked, go away, to die at a certain distance, a score of miles off, for instance. Yet, at the place where they die, the disease neither becomes established nor is propagated; however, Asiatic cholera can be traced throughout, and spreads from place to place, respecting no locality in its march. This distinction is undeniably a real one. How account for it, if they are one and the same disease? Or, are they really two different affections? Before deciding the question, we ought to recall that it is not so long ago that we would not admit that there was more than one syphilitic virus.

MICROBIOLOGY

has not been fortunate—in this city—of late. Owing to a long and painful disease, Prof. GRANCHER—the right arm of PASTEUR—has for a long while this year been away from his laboratory. Fortunately, he is now regaining his health; the Academy of Medicine recently admitted him among its members; and this great testimony of sympathy, it is to be hoped, will contribute to his recovery. As for PASTEUR himself, it is announced that, retired to his estate at Ville-neuve-l'Etang, he is in a condition which fills his family with serious anxiety. We trust that the news is not scrupulously correct, and that the political press has viewed matters in too dismal a light.

WISDOM OF THE AUTHORS:

ABSTRACTED FROM RECENT MEDICAL WORKS.

* * *

ANOMALIES OF THE HARD PALATE IN THEIR RELATION TO DEGENERATION.—DR. R. CHARON.

The hard palate presents morphological modifications in 10 per cent of sane individuals. The palatine anomalies exceed in frequency (80 in 100) all other physical anomalies that characterize degeneration. They can be reduced to a small number of more or less distinct or composite types. The principal ones are the *flat*, the *pointed*, the *dome-*

shaped and the *angular*. These anomalies are of real importance in the ætiologic diagnosis of mental diseases, because they are, in certain cases, the only sign of the physical degeneration; they are never in the ensemble of other malformations (of the cranium, the ears, the eyes, the limbs, etc.); and, finally, they can be more readily detected than other anomalies. Those of the hard palate follow an ascending scale, in proportion to the more or less advanced stage of the degeneration, from the flat to the angular-asymmetric type. They are relatively infrequent (35 in 100) in persons affected with general paralysis, and still more rare (25 in 100) among the insane affected with the delirium of persecution. On the other hand, anomalies are very frequent (82 in 100) among idiots and imbeciles; among the hysterically insane (70 in 100); among epileptics (76 in 100); among the insane affected with other mental disorders—such as mania, melancholy, “circular” and intermittent insanity, etc. (80 in 100).

RUBEOLA.—DR. E. DIDIER.

Rubeola is a distinct morbid entity among the eruptive fevers. In its development it is plainly distinguishable from summer roseola, from which it further differs in the length of its incubation, its polymorphous eruption, the angina, and the multiple adenites. Ordinarily benign, it may assume a serious turn and present complications which render the prognosis difficult. Such serious cases are observed principally among the poor classes, and it is likely that some day the disease will assume a still graver form; for it has steadily been increasing in gravity during the last two centuries. Rubeola is contagious, and requires prophylactic treatment. Strict and scrupulous isolation is necessary; the patient should not leave his place of isolation before a quarantine of 20 days and a careful disinfection in an antiseptic bath. It will be advisable to close the schools wherever an epidemic breaks

out; the schoolhouse should be disinfected and ventilated. Whenever a sporadic case occurs among an assemblage of children, the sick child ought to be isolated and not again permitted to go among the others before the end of fully two weeks from the appearance of the eruption. In hospitals the patients affected with rubeola should be kept in special wards, independent of those in which patients with scarlatina and roseola are attended-to.

THE DIFFERENT METHODS OF RESTORING LOSS OF BRAIN MATTER.—J. L. MOISSON.

The circular pieces of the skull taken out by the operation of trepanning re-unite by means of a callus, often of bony, more rarely of fibrous texture. The case is the same with grafts of bone taken from animals, and, *a fortiori*, with bone segments left in connection with soft parts. The restoration of the skull is indicated in all cases of trepanning having a large surface, provided the dura-mater has been kept intact or carefully put back in place. In trepanning for Jacksonian epilepsy, the restoration of the skull does not seem to have the bad effects attributed to it, from the point of view of the recurrence of accidents.

In cases of trepanning of small dimensions, the re-application of the circular piece of bone which has been taken out, is the best method; but in operations which affect a large portion of the skull it is preferable, as WAGNER thinks, to have recourse to the temporary resection of the skull, the execution of which is also easy and which offers more guarantees of the reuniting of the bone. In the case of long-standing loss of substance, or when it is impossible to re-apply the bone which was taken out,—as in the case of cancer, tuberculosis and caries,—bone-graft is, according to KOENIG, to be put into practice with the bones of animals, and is superior to autoplasmic methods which necessitate a second traumatism.

Recently, heteroplasmic methods, such as

the use of celluloid or decalcified bone, have given tolerably good results; but as foreign substances, thus introduced into the general organism, may be later absorbed, it is preferable to have recourse to the methods above indicated. As for the detaching of a large fragment of the external table of the skull, it has been judged impracticable (PORRIER). The external tablet is always subject to breaks, and a cutaneo-periosteal shred is obtained, to which adhere only a few fragments of bone of small size.

INFLUENCE OF ACUTE DISEASES UPON LACTATION.—DR. A. MOCHEZ.

The author is of the opinion that it is useless and even injurious to permit a woman to nurse her infant during the puerperal period. Lactation neither prevents nor mitigates the puerperal complications. There is no lacteal metastasis. If a suckling woman is affected with an acute disease, the conduct of the physician will vary according to the nature of the case, its probable duration, and the social condition of the mother. In the poorer classes, the maternal nursing should be resumed, when practicable, at the termination of the disease. However, there are diseases, such as variola and acute rheumatism, with which the resumption of nursing would seem incompatible.

GASTRIC DILATATIONS AND THE REGIMEN APPLICABLE TO THEM.—DR. TH. KYRIAKIDÈS.

According to the author, dilatation of the stomach does not represent any morbid entity; it is associated with pathological phenomena of very diverse kinds, and depends on manifold conditions. Ascertaining that a gastric dilatation exists, is merely a part of the diagnosis. The latter, to be complete, ought to be based upon the study of the chemistry of the stomach, the disorders in which will determine the entire therapy of the dilatation. The treatment should be based chiefly upon a proper regimen; in all cases the physician should endeavor to

ascertain the cause of the dilatation, and in treating this, at the same time regulate the diet.

TREATMENT OF INFANTILE SPASMODIC HEMIPLEGIA.—DR. A. RETROUVEY.

In the treatment of this affection, articular massage, by effecting the progressive removal of the osteo-arthritis and the pain which may result from it, diminishes the muscular contracture. At the first appearance of this disorder, as soon as the hemiplegia or hemiplegic paresis is observed, articular massage should be resorted-to. If contractures supervene, they will quite certainly be less severe, and they may, perhaps, even stimulate the nutrition of the body arrested in its development. But the latter point has not been verified with patients in an advanced stage of the affection.

INTRA-STOMACHAL FARADIZATION IN THE TREATMENT OF CERTAIN CASES OF OBSTINATE VOMITING.—DR. F. CARON.

Intra-stomachal faradization is not applicable to nervous chronic vomiting, except in cases spasmodic in origin; but when the vomiting is traceable to psychic conditions and produced by a sort of auto-suggestion, it should be tried. If, however, after four or five applications, no amelioration is observed, it is useless to continue the treatment.

TOTAL PARALYSIS OF THE BRACHIAL PLEXUS.—DR. F. RÉMY-NERIS.

This paralysis may come from an alteration of any part of the nervous system of the arm. The medullary centre (connected on one side—for the exercise of the will power—by the pyramidal tract with the motor zone of Rolando; and on the other side—for the perception of sensations—by the funiculus cuneatus with the occipital process) is seldom attacked by itself; as is also the case with the motor-centre in the cortex cerebri.

The paralyzes of the peripheral nervous

system are more numerous and are divided, according to their position, into radicular and fascicular, total or partial. Peculiar to the cerebral brachial monoplegiæ, dynamic or organic, are the preservation of reflexes, and the absence of atrophy and of trophic disorders, phenomena to which are frequently added, to characterize the origin of motor disturbances, a series of cerebral symptoms.

Medullary nuclear paralyses are rapid in their formation, and bring-on an acute paresis of the muscular masses, to which are joined loss of the reflexes and integrity of sensibility. Lesion of the radicals is characterized by eye troubles. As for the fascicular paralyses, they produce more diffuse phenomena and occasion peculiar trophic and sensitive disorders.

The knowledge of the ætiology (hysteria, traumatism, lesions of the skull and of the vertebral column, tumors of the supra-clavicular space), will often serve to recognize alterations which present a phenomenality somewhat analogous to toxic paralyses, cervical myelitis, and myopathia in an upper extremity.

The therapeutics of the disease is almost entirely confined to methodical treatment with electricity, practiced, according to the case, with continuous or alternating currents. At the beginning of the affection, recourse may be had to revulsives and to deep cauterizations, repeated at the point of emergence of the spinal nerves. The revulsive method must be abandoned when the pain ceases. The electricity ought then to be cautiously applied, finally massage, douches, sulphur baths, frictions with turpentine oil and with balsam of Fioravanti (*Cod.*).

PERMANENT SLOW PULSE.—DR. F. BOUESSÉE.

This is a morbid state, characterized by slowness of the pulse, syncopal or apoplectic attacks, epileptiform attacks, and dyspnœa. There are three theories which endeavor to explain this affection. According to the first, it is due to lesions of the

heart; according to the second, to irritation of the vagus nerve; according to the third, arterio-sclerosis of the heart and that of the arteries of the bulb combine to produce bulbar ischæmia. The prognosis is exceedingly grave; this disease generally leads to death, either by syncope—which is most frequently the case, by uræmia, or by asystole.

The treatment comprises three great indications: to combat the arterio-sclerosis; to prevent the ischæmia of the bulb; to contend against the consequent uræmia, which, by itself, can cause the epileptiform attacks, the dyspnœa, and the vomiting, against which an exclusive milk-diet must be employed. For the disease to actually exist, the author says that the pulse must permanently be at not more than sixty times a minute. There is such a thing as provisional or transitory slow pulse.

CONTRIBUTION TO THE STUDY OF APPENDICITIS.—DR. P. BENOIT.

In the divers affections of the vermiform appendix of the cæcum, the symptoms at the start are so varied that, in most cases, they do not allow of a diagnosis of simple or perforating appendicitis. There are two different cases in which surgical intervention is indicated: first, when the general or local symptoms, at the end of several days or even of several hours, become more and more aggravated, in correspondence with the more or less rapid course of the affection; second, in cases of relapsing appendicitis. Most often the oblique incision, from 12 to 15 centimetres [5–6 inches] long and made on a level with the tumor, is indicated. The median incision, or the one which is performed at the extreme edge of the rectus abdominis, is reserved for special cases. Excision of the appendix and the suture of the stump should be practiced as often as possible, in order to prevent relapse. In cases of abscess, the drainage should be done with a strip of iodoform gauze. Nearly all the cases cited by the author were fol-

lowed by cure, with, sometimes, the persistence of a fistula which showed no tendency to heal.

WARTY TUBERCULOSIS OF THE SKIN.—DR. H. ANGIBAUD.

In consequence of anatomo-pathological and bacteriological researches as well as experimental inoculations, the author thinks that the tuberculous nature of this affection may be safely affirmed. In its histological structure, as well as in the small number of bacilli which is met-with, the disease much resembles many forms of lupus, particularly the sclerous lupus of *LELOIR* and *VIDAL*. The author goes so far as to think that there is no need of establishing a distinction between this latter affection and that which *RIEHL* and *PALTAUF* describe under the name of "wartly tuberculosis of the skin." According to his idea, it is one and the same disease.

There is also much analogy between this disease and the one designated under the name of "anatomical tubercle," at least as far as histological structure, clinical aspect, and pathogenic and evolutionary peculiarities are concerned. The author believes that both affections are caused by inoculation of the tuberculous bacillus; and the slight differences which distinguish them, from a clinical point of view, are simply due to the inequality of the reaction of the part on which the inoculation is made.

The best treatment seems to be the scraping or curetting of the tuberculous patch. Consecutive general infection has been denied; it may occur, however, but rarely. Relapse in the same spot is equally rare.

CONTRIBUTIONS TO THE STUDY OF THE CYSTS OF THE EPIDIDYMIS.—DR. F. DOMINGUEZ.

According to the author, all the theories put forward on the subject of the pathogeny of the epididymis, apply to certain cases; but not one of them applies to all cases. The traumatic origin is sometimes incontestable.

The dilatation of the spermatic ducts rarely acquires much volume; but their obliteration causes small cysts, which are situated in old men, in the very interior of the head of the epididymis.

Certain cysts are due to the destruction of the Wolffian body. The greater number might be ascribed to the evolution of the serous membrane and the tendency which the head of the epididymis has to blend with the testicle. Lymphatic or sanguineous cysts are rarely met-with. The presence of spermatozoa is scarcely but an accessory phenomenon; they may be found in all kinds of cysts, and they get there by rupture, after the fusion between the wall of the ducts and that of the cyst. The best treatment, according to the author, is the incision and, in certain cases, the ablation of the sac.

TREATMENT OF HYDATID CYSTS OF THE LIVER BY MEANS OF ANTISEPTIC WASHINGS AND INFECTIONS.—DR. A. E. MORIN.

All hydatid cysts of the liver easily accessible to the needle of an aspirator, are amenable to treatment by antiseptic irrigations and injections, whether suppurating or not, and whatever may be their period of evolution. This treatment generally brings about a cure, and it is easy of application and exempt from danger. It is only after this has failed that recourse should be had to surgical treatment, properly speaking. For cysts of medium size the eligible procedure would be the injection of corrosive sublimate, after previous aspiration; and *BACELLI*'s method is only to be advised in cases where the sac of the cyst cannot be emptied. For voluminous cysts, especially when these have suppurated, the treatment by irrigations is to be employed in preference. If corrosive sublimate is chosen as the antiseptic, the washings with *Van Swieten*'s solution should be followed by additional washings with salt-water; but the latter are not necessary if a solution of naphthol is used. Corrosive sublimate has a

more marked antiseptic and antiparasitic action, and, consequently, ought to be preferred to naphthol, except under circumstances when accidents of mercurial poisoning are to be feared.

If it is true that relapses have been observed after treatment by antiseptic irrigations and injections, the same objection may be made to the surgical treatment. It is not even certain that this assertion relating to relapses is correct. It may be, that it is not an old cyst which re-forms, but rather a new cyst which is situated in the immediate neighborhood of the old one.

CONTRIBUTIONS TO THE STUDY OF SEROUS IRITIS.—DR. H. CHATELOT.

This disease is a chronic inflammatory process, which has for its point of departure the ciliary body and peri-corneal lymphatic spaces, and which may extend to the whole uveal tract. This process occasions an exudation not only serous in character but also cellular, which has little tendency to organization; it has no unique and well-defined cause. It is specially observed in anæmic, debilitated, and scrofulous individuals; in women whose menstruation is deranged; in the convalescence from infectious diseases; and in malignant syphilis, hereditary syphilis and, exceptionally, in rheumatism.

As for treatment, atropine should be used only in moderation, on account of the glaucomatous complications which may occur. This affection has often been confounded with chronic inflammatory glaucoma. But in this latter malady, the inflammation of the eyeball has something of a characteristic: under the conjunctiva appear the large tortuous branches of the anterior ciliary veins greatly distended and forming an anastomosis in the form of a circle around the cornea. In serous iritis the hardness of the eyeball is more pronounced.

Serous iritis is an affection which is often refractory to all treatment, and which drags

along for an indefinite period. There are no plastic exudations in this affection, and the pupil remains normal. The depth of the anterior chamber of the eye is increased. Finally, there exist, on the endothelium of the interior surface of the cornea, more or less numerous and extensive opacities.

METHOD OF TREATMENT BY PROVOCATION OF ARTIFICIAL ABSCESES.—DR. FOCHIER.

The author recently reported to the Academy that the provocation of artificial abscesses, a method which will probably be considered as purely revulsive, appeared to have been the cause of the cure in several serious cases of puerperal infection; he also believes in the favorable influence of this medication on the course of threatening pneumonia. "I consider it," he says, "as very probable that this curative action may be produced in cases of pyæmia, septicæmia, erysipelas, grippe, osteo-myelitis, in certain complications of typhoid fever, in all infectious diseases which may produce multiple suppurations, and, in a general way, in all acute diseases which are apt to end in suppuration, whether this suppuration be a desirable phenomenon or, on the contrary, whether it threatens to destroy an important organ. Subcutaneous injections of oil of turpentine appear to me to be, so far, the most efficacious method of producing artificial abscesses; they bring on phlegmons whose acuteness, intensity, and likelihood of diffusion are very variable, and there is often a relation between the acuteness of the phlegmon and the amelioration of the general symptoms.

"The two best points for the production of the abscesses are, in my mind, the depression in the deltoid and the hypogastrium. The pain occasioned by the phlegmons seems to be less intense at these two points than anywhere else. However, when there is a local lesion, it would seem to be useful to provoke the artificial abscess in the vicinity of the lesion, in order to obtain a revulsion

or a derivation, and to better the local condition, and at the same time obtain the fixation of the generalized infection. The injection itself is very painful, and the pain becomes quite intense an hour or two after the puncture, and may continue for forty-eight hours.

The artificial phlegmon may take on two distinct forms: (a) the anthracoid, in which, in consequence of an intense reaction, acne pustules form under the epidermis, and communication with the sub-cutaneous collection by numerous orifices which secrete a pus of little consistency, mixed with detritus of sphacelated tissues; (b) the residuous form, where, after an acute period of greater or less duration and usually of undoubted fluctuation, the abscess takes on a paste-like consistency, while it continues to develop slowly, sometimes without manifesting any tendency to spontaneous opening. The abscess then contains a sort of paste composed of pus, the liquid portion of which is absorbed, and of debris of necrosed cellular tissue.

Two injections at one time have seemed

to me to be sufficient, but four may be made—as indicated by Drs. LÉPINE and DIEULAFOY, or two every other day—as recommended by Dr. THIERY. In generalized infectious conditions, as long as convalescence is not fully established, it is necessary to have recourse to the artificial abscesses if necessary, to open one only after having caused the formation of another. In cases of general infection with important local lesions, it is by no means indicated, as is the case with cyclic or localized affections,—pneumonia, for example,—to wait until that affection manifests a tendency to suppuration. Nevertheless, it is necessary, in order to be authorized to institute this painful treatment, that the signs of infection be menacing and of such a nature as not to be susceptible of being overcome by local intervention at the point of departure of the infection (evacuation of purulent centres, and antiseptic irrigation, for example).

Certain sub-acute or chronic morbid states and certain surgical affections are perhaps amenable to artificial, localized pyogenesis.

RATIONAL DIETETICS:

STUDIES FOR "MERCK'S BULLETIN."

FOOD VALUES.

VII.

PHYSICAL DERIVATIVES OF MILK.

[CONCLUDED.]

BUTTERMILK.

The next derivative, least removed in food quality from the normal milk, is buttermilk.

This fluid is derived from the cream, which has been separated from the milk by the process described on page 433 of the August Number of MERCK'S BULLETIN.

The cream is slowly agitated, by some form of mechanical appliance introduced into the fluid. This foreign body is known as the dasher of the churn, and is variously constructed.

CHURNING AND FORMING BUTTER.

After perturbing or churning the cream

for some fifteen minutes or a half an hour, with the contents of the churn moderately cool,—if all the conditions are favorable,—the following results are obtained.

The albuminous film which in the cream loosely bound the fat-globules together is driven off or separated from the fat proper, and the free oil globules coalesce or mass together into one common macroscopic body, which is known as butter. *The remaining fluid* is the food-stuff which goes by the name of buttermilk.

LIABILITY TO CONTAMINATION.

Buttermilk, like milk, is liable to undergo, in transportation, all the deteriorating influences which were described when discussing the normal milk. It also, like milk, contains a large number of what may be called harm-

less micro-organisms. It may also become the medium through which special pathogenic micro-organisms are conveyed to the system.

REMOVAL OF OFFENDING ELEMENTS.

All the ill effects due to the presence of germs, ptomaines, etc., can largely be precluded, as in the case of normal milk, by *carefully sterilizing* all commercial products of this class.

PURE BUTTERMILK.

To get a thoroughly reliable and absolutely satisfactory quality of buttermilk, the individual must be sent to a country farm-house or to a creamery, where the buttermilk can always be obtained absolutely free from contamination of all kinds,—provided the cream-setting and butter-making be carried out with a due regard for cleanliness. If absolute cleanliness and great care are not enforced at the farm or creamery, the danger of contamination increases with the degree of carelessness permitted in these manipulations.

Therefore, to be absolutely safe at all times, buttermilk, like milk and skimmed milk, should always be sterilized before it is used as a food-stuff in disease. Thus the danger is reduced to the minimum point.

COMPOSITION OF BUTTERMILK.

Assuming that the most satisfactory product possible has been obtained, it will be found, by referring to the table of food-stuffs, page 96 (February Number) of MERCK'S BULLETIN, that every 100 parts of buttermilk comprise 88.00 of water; 4.10 of proteid substances; 6.40 of saccharine matter (lactose); 0.70 of fat; and 0.80 of mineral salts. From this analysis it is seen that almost all the fat has been removed from the milk by this process of butter-making—at the same time the remaining fluid, as compared with milk has been slightly concentrated, so that the percentages of proteid elements and the lactose are increased above those given for normal milk. These facts are of special importance in explaining some of the good

effects which can be obtained through this particular food-stuff.

DAILY INGESTION.

With the above stated composition of buttermilk, a daily ingestion of 3172 grammes (102 ounces) will be needed to secure the 130 grammes (4.19 ounces) of proteid substance required for sustaining the normal daily constructive work and overcoming the wear and tear of the animal organism.

This quantity of buttermilk will also furnish to the body 2791 grammes (89.75 ounces) of water; 22 grammes (0.71 ounce) of fat; 203 grammes (6.53 ounces) of milk-sugar; and 25 grammes (0.81 ounce) of mineral salts.

Although the fat is not completely removed, its percentage is reduced to the minimum obtainable with this class of food-stuffs.

The decrease in fat and the simultaneous rise in the percentage of milk-sugar are two reasons why buttermilk is so valuable as a food-stuff in a certain class of cases; as will be explained later in the discussion.

OXYGEN USED.

Applying, again, the same rules for computation that have been employed in estimating the other food stuffs recorded thus far in these studies, it is found that less oxygen need be expended in the assimilation and metabolism of this quantity of buttermilk, than was needed when using skimmed-milk as an exclusive diet.

To completely oxidize all the proximate principles contained in these 3172 grammes (102 ounces) of buttermilk, it is found necessary to expend only 23,949 oxygen units. This outlay of oxygen will fully transmute all the contained elements into their complete and final excrementitious products for elimination by the excreting organs of the system.

This quantity of buttermilk—as with all the other food-stuffs so far here computed—keeps up the standard amount of proteid supply; consequently, so far as this class

of substances is concerned, the required amount of constructive material is supplied to the animal organism; while the percentage of the other proximate principles falls at whatever figure happens to correspond from the analytical formula, with the securing of the needed 130 grammes (4.19 ounces) of proteids.

The object in ALL these computations and comparisons is, to work for a common and invariable standard; thus tending to secure some absolute scientific rules by which the medical man can be intelligently governed in the selection of food-stuffs, and by which he can properly direct the diet both of the sick and the healthy.

HEAT AND ENERGY EVOLVED.

Computing the heat-producing power of the proximate principles contained in these 3172 grammes (102 ounces) of buttermilk by the same rules as were applied for the other food-stuffs,—it is found that the total quantity of heat, or energy, or mechanical work, that can be developed out of the complete oxidation of this amount of buttermilk is only equal to 379,744 kilogramme-metres (2,746,688 foot-pounds) of mechanical energy.

This result, as compared with the total yield of heat and energy obtained from the other food-stuffs computed, is very low. It is even lower than was obtained when the diet was exclusively confined to skimmed milk, being 26,810 kilogramme-metres (916,876 foot-pounds) less from buttermilk than from skimmed milk. It is also interesting to note that the smaller yield of heat and energy is in close correspondence with the smaller number of oxygen units used in the one instance as compared with the other.

VALUE OF THE SURPLUS OXYGEN.

Taking 40,000 oxygen units as the maximum daily oxygenating capacity of the human system,—it is found that when a patient is taking 3172 grammes (102 ounces) of buttermilk, and, as stated, only 23,949 oxygen units are expended in completely

transmuting this amount of food—there is consequently left *a surplus capacity* of some 16,000 oxygen units. This is a very important adjuvant to the treatment of all diseased conditions, and especially so in those that have originated through a prolonged condition of *incomplete oxidation*.

For a long time it has been a well-recognized clinical fact, that a buttermilk diet is more valuable and effectual in its curative powers than any other single kind of food-stuff. Indeed, the results have been so apparent that many have been inclined to attribute some special therapeutic properties to this particular milk derivative,—the supposition being that the process of churning and the consequent segregation of the fat in the form of butter wrought some peculiar change in the remaining fluid which gave the buttermilk its peculiar therapeutic value;—all of which was, however, pure problematic speculation, without any sound chemico-physiological explanation to support the supposition. Still, the clinical evidence, which could not be disputed, was constantly brought forward to support this unexplained claim.

PRACTICAL DEDUCTIONS.

By this close, careful study of the composition of the food-stuffs and of the physiological phenomena of the animal organism, it has been demonstrated that by using a buttermilk diet *the maximum amount* of constructive and reparative work can be accomplished within the animal organism, *at a saving of one-third of the oxygenating capacity* of the system. In this large amount of reparative work upon a small outlay of oxygen, the great value of the buttermilk diet finds its true explanation.

As was said previously in regard to skimmed milk,—so likewise with buttermilk,—the individuals using it as an exclusive diet are usually sick,—partially or wholly bedridden. They are expending comparatively little energy through mental activity or physical labor. They are in a

semi-quiescent state, and consequently the great loss of heat and energy in this diet, which otherwise would be very detrimental, is not of such vital importance as it would be in a state of health and consequent normal activity.

So long, therefore, as sufficient heat is generated to sustain the normal bodily temperature, and furnish enough energy for the complete transmutation of the proteid elements, this reduced production of animal heat and energy is of no serious consequence. There is usually less heat excreted from the body under these circumstances, and in this there is a saving by which energy is conserved.

To a sick person upon a buttermilk diet, however, any slight mental or physical exertion occurring, and causing a rapid excretion of heat and loss of energy, will, in consequence of the small yield of heat and energy from this diet, produce the same *symptoms of sinking and depression* that were previously recorded as liable to occur on a skimmed-milk diet. Here, as before, all that was said regarding the vicarious use of *alcohol* applies with equal force.

USE IN PULMONARY LESIONS.

Whenever there is a mechanical defect in the pulmonary organs, as occurs in many diseases of the lungs,—such as tuberculosis, pleurisy with compression of the lung, emphysema, interstitial pneumonia so-called, syphilitic and other forms of sclerosis of the lungs,—the fact that this diet will yield so large a proportion of constructive and reparative material for the small outlay of oxygen used, should always be remembered, and the patient be given the benefit of it. Clinically, this plan has long been followed in an empirical manner; but, when the clinician is pressed for a logical and scientific explanation of the good results obtained, the common answer has been: “the well-known clinical fact,” and probably that the buttermilk also possessed “some special therapeutic properties;”—

while the true explanation lies in the simple physiological fact, that more constructive and reparative work can be developed, with the smallest expenditure of oxygen, when exclusively confined to a buttermilk diet, than upon any other form of food-stuff thus far computed.

THE VITAL ERROR OF “OILY” DIETS.

One great mistake that is commonly made in the therapeutic management of this class of cases, in which there is an inability to supply the full quatum of oxygen, is to recommend a free use of oil,—usually in the form of *oleum morrhue*, either pure or in some mixture. Under the above-described conditions, *all forms of oils are objectionable*, by virtue of the common physiological law that the fat first reaches the blood-capillaries in the lungs. At this point the system takes in its new supply of oxygen, in consequence whereof the fat becomes so rapidly oxidized or transmuted that its identity is even lost in passing through the pulmonary circuit. Naturally used a large amount of the oxygen taken-in must be used-up at the very point of its entrance into the system. A large amount of heat is generated in the lungs; which, to be of general service to the economy, must first be distributed through the circulating blood to all parts of the body, and thereby is often too rapidly dissipated before it can be fully utilized to aid in the proteid metabolism.

The original intaking capacity of the system for oxygen being already limited where there is a defective nutritive condition,—this sudden and increased consumption of oxygen *at its very point of entrance* still further cuts-down the amount of oxygen that can be distributed to the liver and other organs of the body. In consequence thereof, there is quickly developed by the therapeutic measures instituted a still greater lack, throughout the system, of the oxygen which is required to perfectly transmute the proteid bodies absolutely needed for the nutritive work of the system; and which might have

been fully accomplished upon the buttermilk diet *if the oil had been withheld*,—thereby avoiding this undue expenditure of oxygen in the pulmonary circuit.

THE FATAL SEQUEL.

From the unquestionable fact that fat does not enter into the constructive metabolism of the body, but is rapidly oxidized and transmuted into heat and energy in large amounts,—it does of necessity stimulate and invigorate the whole system and particularly the nervous mechanism, which responds quickly to this form of irritation. This naturally deludes not only the poor sufferer, but the friends, and too often the physician, with the idea that the patient is rapidly and permanently gaining; but, owing to the defective supply of oxygen to the system at large, proteid oxidation grows progressively less and less perfect, constructive metabolism grows weaker and weaker; until suddenly there is a rapid failure, and the descent toward the grave is so speedy that no human skill or earthly power can stay the downward progress. When the physiological powers have been sapped both by the original disease and by this false condition of oxidation, death becomes inevitable by this combined process of starvation and false stimulation.

A SECOND LINE OF UTILITY.

Another reason why the skimmed-milk and buttermilk diets are so valuable,—besides cutting down this primary expenditure of oxygen,—is in the increased amount of the *sugar of milk* which they contain. This applies particularly to the latter diet. Throughout all this study of digestion and food values, it has been continually and repeatedly shown that a certain amount of heat over and above what can be generated through the oxidation of the proteid molecule is necessary for the most perfect transmutation of the proteid substances.

This extra heat is also required in considerable quantities throughout the entero-hepatic circulation, rather than in the lungs.

Chemistry and physiology have proved that all starchy substances, as well as all the other forms of saccharine elements, have to be transmuted into an absorbable glucose form before they can be utilized by the system as food. Consequently this whole class can be spoken of, physiologically, as “glucose.”

It has also been shown that glucose, like fat, does not enter into the strict constructive work of the body; that is, the animal organism cannot take fat or glucose and incorporate it with free nitrogen or nitrogenous compound to form a proteid molecule;—this anabolic process being exclusively confined to vegetable life.

Glucose, therefore, like fat, is simply a heat-producer, and, through this heat, a source of energy. But the heat-producing power of glucose is only one-thirteenth as great as that of fat, and the rapidity with which it evolves heat is much less rapid than from a corresponding fat-molecule.

It is also established beyond doubt that glucose elements of food are absorbed through the entero-hepatic circulation, and first reach a capillary system beyond their point of absorption,—that is, in the *interlobular* and then in the *intralobular* plexuses of the liver.

While passing through the entero-hepatic circulation, to reach the heart and arterial system, the glucose is transmuted into carbon di-oxide and water,—evolving, by this chemical mutation, heat and energy. It is in this heat-producing power developed while passing through the entero-hepatic circulation, that the great value of glucose is found.

The proteids also travel by the same route, and undergo innumerable transmutations in their transit through the entero-hepatic circulation. When the system is in a state of suboxidation, the proteids are much less able, *per se*, to generate heat and energy enough for their complete chemical mutation than in the nominal state; conse-

quently, at this time, the oxidation of the ingested 203 grammes (6.53 ounces) of glucose makes its influence felt distinctly. The 59,682 kilogramme-metres (431,679 foot-pounds) of heat produced in the entero-hepatic circulation by the oxidation of the glucose is sufficient, together with that evolved from the proteid, to insure a perfect transmutation of both the proteid and the glucose.

BUTTERMILK AN OXYGEN-SAVER.

This fact unquestionably explains the great utility of buttermilk when used as an exclusive diet in conditions of diminished oxygenating capacity and states of sub-oxidation. By shutting out the bulk of fat, the oxygen is not exhausted at its very point of entrance, but is reserved to reach the various parts of the body, and particularly the entero-hepatic system and the liver. Thus, sufficient oxygen is reserved to completely oxidize the requisite quantity of proteid substance; which, aided by the heat generated from the glucose absorbed, raises the constructive and reparative powers of the system to the highest possible standard.

THE PURE MEAT-AND-FAT DIET NOT A SICK-DIET.

From this reasoning we see why the pure meat-and-fat diet, although yielding the largest amount of constructive material and the largest amount of heat and energy for the smallest outlay of oxygen as long as the oxygenating capacity is not restricted, *cannot* be considered most valuable in disease and in states of suboxidation. In health, and when the full oxygenating capacity obtains, a rapid consumption of oxygen and a large yield of heat and energy are required, to stimulate the nervous and physical system to accomplish its multifarious work. Under these circumstances, the system can distribute sufficient heat and energy to entero-hepatic circulation and body throughout, generated through the oxidation of the fat, to aid in and to perfectly sustain the proteid oxidation;—while in disease, a sudden and largely increased

excretion of heat will interfere with this result.

At the same time, this goes to show that a *mixed diet*, containing a certain percentage of glucose, will somewhat counteract the expenditure of oxygen in the lungs; and that the saving of oxygen, by taking-in less fat, can be utilized in oxidizing the glucose in its transit through the entero-hepatic circuit;—thus generating slowly, in connection with the proteid transmutation at this point, a certain amount of heat, which is absolutely essential to the most perfect utilization of the proteid compounds. Where great exertions are made, of course a large amount of fat must be introduced into the system to generate quickly heat and energy, in order to stimulate the whole system to great activity. But for the most perfect workings of the human economy, a well-regulated mixed diet will give the highest state of nutrition and the largest working capacity, with the least risk of retrograde and sub-oxidation changes. The best form of mixed diet, however, as illustrated by nature during infant life, is secured through milk or some of its derivatives, rather than through the vegetable compounds.

THE AUGMENTED BUTTERMILK DIET.

In case the oxygenating capacity is not mechanically impaired, as above mentioned, and the full quatum of oxygen can be taken into the system,—then the 16,000 reserve units of oxygen can be utilized in oxidizing a *larger quantity of buttermilk*; thus still further augmenting the nutritive action of the economy. With this reserve of oxygen added, 4758 grammes (153 ounces) of buttermilk can be completely and perfectly converted into the normal excretory products. This quantity of buttermilk furnishes to the system 4196 grammes (134.62 ounces) of water, 195 grammes (6.28 ounces) of proteids, 33 grammes (1.07 ounces) of fat, 304.5 grammes (9.80 ounces) of milk-sugar, 37.5 grammes (1.21 ounces) of mineral salts. The total yield of heat and energy, or of

mechanical working-power, developed by the oxidation and transmutation of the proximate principles contained in this 4758 grammes (1.53 ounces) of buttermilk is found to be 569,616 kilogramme-metres (4,120,032 foot-pounds.)

While this result does not produce the amount of heat and energy normally expended by a healthy individual, it is fully up to, or even above, the requirements of the system in its more passive condition,—as above explained.

NEEDED CAUTIONS.

That no disadvantage occurs from forcing nutrition in this way, may be abundantly substantiated by the study of the renal excretion,—examination of which shows that, although the quantities of the respective excrementitious substances are augmented, the latter are *perfectly formed*, and stand *in the proper percentage* relation to each other.

When forcing the nutritive activity of the system in this manner, therefore, the urine must be *constantly watched*; for so soon as the percentage of urea falls and the uric acid increases, the quantity of buttermilk ingested must be cut down;—otherwise, damage to the system will develop, and the desired curative result will be missed.

Oxalates, glucose, or even albumin,—to say nothing of many other by-products,—may appear in the urine if this process of forced feeding is carried to the extreme.

Consequently, great care and considerable judgment must be constantly exercised, to bring these cases of suboxidation and disease back to a normal healthy standard. It cannot be successfully done unless the urine is carefully and intelligently studied with the view of ascertaining not merely the presence or absence of sugar, but rather the exact state of the oxidation process going on within the body.

Another point to be noticed in connection with the smaller yield of heat and energy when using the buttermilk instead of the skimmed milk as an exclusive diet, is, that

some three thousand less oxygen units are expended in the former as compared with the latter,—showing, as has often been illustrated before, that an almost uniform relation exists between the quantity of oxygen used and the heat produced in all the different food-stuffs thus far computed.

CO₂ AND H₂O PRODUCED, RELATIVELY.

With the buttermilk as with the skimmed milk, there is a wide discrepancy between the amount of carbon di-oxide and water produced, as compared with the meat diet. The *normal* quantity, or 3172 grammes (102 ounces), of buttermilk produces 9,578 units of carbon di-oxide to 11,324 when upon the skimmed milk, and 14,300 when upon an exclusive diet of meat and fat. That smaller exhalation of carbon di-oxide, by carrying less of irrespirable matter into the atmosphere of the patient's room, also aids, in procuring a proportionately larger intaking of oxygen, and thus favors a more active oxygenation. The above quantity of buttermilk produces 7,313 units of water, against 8,969 from the skimmed milk and 11,765 from the meat-and-fat diet.

When the *maximum* quantity of buttermilk, 4758 grammes (153 ounces), is taken, the production of carbon di-oxide units is only 14,367, against 16,986 from the skimmed milk, and 14,300 from the meat-and-fat diet. The number of units for this maximum quantity of buttermilk, and for the skimmed milk and meat diets, respectively, is 9,969; 13,458; and 11,765. This relatively small production of carbon di-oxide, which is only a few units above the maximum obtained from a meat diet, and over 2000 less than from the skimmed milk,—while the nutritive supply is one-third greater than with a meat diet,—is, for the reason just above indicated, another great factor in making the buttermilk so valuable a food-stuff in conditions of suboxidation. It explains another reason why buttermilk was regarded as possessed of therapeutic virtues almost specific in nature. The large supply of free water

which has to be taken in the volume of fluid ingested, to secure the requisite amount of proteid matter, fully balances the discrepancy in the reduced manufacture of water in the system, as compared with the results obtained upon other food-stuffs, such as skimmed milk and the meat diet.

BUTTER AS AN ADJUNCT TO FOOD.

Referring to our table of food-stuffs on page 96 of MERCK'S BULLETIN, it will be found that 100 parts of butter contain 11.70 parts of water, 0.50 of proteid matter, 0.50 of milk-sugar, 87.00 of fat, and 0.30 of mineral salts.

This small percentage of proteid matter excludes butter absolutely from any possibility as a food-stuff in the sense of constructive and reparative work, because to secure the requisite 130 grammes or 4.19 ounces of proteid matter would require the ingestion of several thousand grammes or hundreds of ounces of butter daily, which becomes an impossibility. Therefore, butter can be spoken-of only as an *adjunct* to food, or as a heat-producing agent.

As it has already been shown that every healthy individual must have a certain amount of fat to yield the necessary heat to give the required energy for major work,—it often, and in fact usually, becomes necessary to add some fat to most food-stuffs, because none contain sufficient fat, unless

it is meat and that be eaten very fat. As butter is the most palatable and least disturbing to the digestion, of all fats, it is preferable even to meat fat.

For every gramme of butter taken into the system and utilized, 3841 kilogramme-metres (27.781 foot-pounds) of mechanical work are produced.

In cases where fat is shunned in every possible form, it often becomes necessary to compel the use of fat in some shape to supply the general demand for heat and energy, and also to furnish the necessary heat for the perfect transmutation of the proteid bodies. In all such instances cream and butter are in accord with natural laws, and should be used if possible; but if for any reason the patient cannot be induced to use either butter or cream or fat meat, some artificially compounded or medicinal form of fat must be substituted. It, however, is only in those cases in which the individual *will not* take the requisite amount of fat in its natural state, that any special advantage can be expected from artificially compounding fatty mixtures. In certain other circumstances—as has already been demonstrated—an excess of adventitious fat administered may be the factor that *prevents recovery*.

This particular point is not as fully understood and acted-upon as it should be; and, consequently, much contradictory testimony thereon has crept into medical literature.

CLINICAL PAPERS

ON LIVE TOPICS.

SURGICAL GANGRENES;—THEIR PATHOGENESIS AND TREATMENT.

By DR. JEANNEL.

[Read at the SIXTH FRENCH SURGICAL CONGRESS.]

Gangrene and putrefaction are two different things: the former is the mortification of living tissues; the latter, putrid or septic fermentation of mortified tissues, of tissues of diminished vitality, or even—in certain

very peculiarly characterized conditions—of normal living tissues.

Gangrene cannot be putrid; at all events, it becomes so only secondarily. In other cases, it is the septicæmia that leads and the gangrene that follows.

PATHOGENESIS OF GANGRENES.

There are two classes of gangrenes: *trophic* and *toxic*. The former are either (1) of

vascular origin; (2) of *nervous* origin; or (3) due to a *cellular disorganization* consequent upon burns, traumatism, etc.—If they are of vascular origin, they have as a cause either pathologic lesions (arterio-sclerosis,—whose ætiology is chiefly ascribable to syphilis, paludism, alcoholism, etc.,—arterial emboli, non-infectious venous thrombi, arterial spasms of ergotism), or traumatic lesions (arterial rupture, compression, or ligation). If they are of nervous origin, they are produced by pathologic lesions—such as ulcers, symmetric gangrene, decubital gangrene, or various disturbances—or by diverse traumatic lesions.

Toxic gangrenes are due either to (1) a *microbic intoxication without any diathesis*, or indeed to (2) *microbic intoxication with a diathetic condition*. In the first case, the intoxication may be general (gangrenous septicæmia, gangrene from infectious fevers), or local (malignant pustule, septic phlegmon); in the second case, these same pathogenic causes of gangrene are modified by the soil on which they develop,—that is to say, by alcoholism or diabetes.

Trophic gangrenes remain localized in the region that has suffered the disturbance or arrest of nutrition which has produced them. External influence often interferes in the form of more or less violent traumatism; but microbic inoculation plays no part. As long as they preserve their virginity, trophic gangrenes are neither contagious nor invasive. Toxic gangrenes, on the contrary, are putrid in origin; they are engendered by the microbic inoculation, favored or not by a diathesis; they are strongly contagious and invasive.

Trophic gangrenes are not infectious; they generate many pyretogenic toxins (GANGOLPHE, COURMANT), but no septicæmias. Septicæmia is only a complication, an accident in their evolution. Toxic gangrene is microbic in origin. There is always an inoculation which first infests locally, and then the entire organism. The gangrene is the

manifestation or the symptom of this inoculation; it may even be wanting. The malignant œdema has no sphacelus; the gangrenous septicæmia can kill before the appearance of the sphacelus. The excessive virulence of the microbic poison suffices in many cases to create the infectious state from which gangrene will result, but furthermore, the organism is more or less disposed to submit to the effects of the inoculation; paludism, alcoholism, and diabetes, render the organism sensible to the inoculation of poisons that are but little virulent or insufficiently toxic in other conditions.

TREATMENT.

In aseptic, or amicrobic trophic gangrene, the surgeon has the choice among three methods: (1) expectation and spontaneous elimination of the gangrenous segment; (2) late and conservative amputation after expectation, allowing of the spontaneous limitation of the gangrene; (3) primary amputation. The expectant treatment combined with embalming of the limb in a strongly antiseptic dressing, particularly with iodoformized cotton, is a method of necessity when the constitutional condition of the patient or his surroundings, or the limited supply of instruments, forbids primary amputation. The latter appears to be the eligible method in all other circumstances. Amputation delayed until limitation of the gangrene, is an optional method when the reasons that necessitated the expectant treatment have disappeared.

In inoculated trophic gangrene, amputation is most necessary but also most hazardous; when the septicæmia is already too invasive, it is often best to freely treat the focus with the thermo-cautery, wash it with sublimate solution, touch it with zinc chloride, powder it with antiseptic powders, and embalm it in specially well-prepared dressings.

In toxic gangrenes, the expectant treatment and embalming, followed or not by late amputation, constitute the preferable

method. Primary amputation has without doubt given brilliant results; but it is a question whether a certain number of these cases did not belong rather to the category of putrid trophic gangrenes, than to toxic gangrenes.

PRIMARY URINARY TUBERCULOSIS.

BY E. HURRY FENWICK, F.R.C.S.

[Abstract of a Lecture delivered at the LONDON HOSPITAL.]

One of the most striking characters of tuberculosis of the urinary organs, is its mimetic power. The wider my experience of this disease, the more convinced I am that, owing to the misleading mimicry of its symptoms, its earlier stages are often passed unrecognized or wrongly diagnosed. Valuable time is thus not only wasted, but the disease also is often greatly aggravated by injudicious instrumental efforts to relieve it, or to trace it to its cause. After having watched the progress of over a hundred cases of urinary tuberculosis, I have come to the conclusion that, when it attacks the lower divisions of the tract—the bladder, prostate, and urethra—and is wisely treated, it exhibits as marked a tendency to obsolescence or even cure as the same disease when situated in the lungs. Even when the upper sections, the kidney and ureter, are primarily invaded, the prognosis is, I suspect, more favorable than is generally admitted. I will lay some stress upon (1) the urinary diseases which primary urinary tuberculosis closely simulates; (2) their differential diagnosis; and (3) the dangers of injudicious treatment,—dealing in each case only with primary deposits. Ascending tuberculosis of testicular origin is usually obvious, and secondary miliary deposits of a general infection are not only frequently symptomless, but possess no interest for the surgeon, and are always beyond his skill.

PRIMARY RENAL TUBERCULOSIS.

Clinically, as well as pathologically, we find that miliary tubercles irrupt from beneath the mucous membrane of the renal

pelvis, or colonize in the glomerular zone of the cortex. As our knowledge increases, we may be able, perhaps, to group separately the symptoms evoked by the deposit in each of these differently constructed areas. At present this cannot be done with accuracy, and I can only express my belief that, in the pelvic form of the disease, the initial symptoms are as follows: Blood and pus appear in small amounts in the urine, either coincidentally with renal pain, or very soon after it commences; renal colic supervenes relatively earlier, evoked probably by the ulceration, but later-on by the throttling of the ureter by caseous deposit; the stages of the disease are passed through more quickly, and the bladder—that index of the progress and the severity of urinary tuberculosis—is affected earlier. When the deposit is, however, situated in the cortex, it has to break into the renal pelvis before it can give rise to characteristic symptoms. Polyuria, from the irritation of its presence, is perhaps the symptom first noticed or complained-of, even before the aching in the kidney. The urine is murky, and contains albumin over and above that due to the trace of pus. The hæmorrhage from these two positions also varies, hence, perhaps, the divergence in the opinions of writers on the subject. In the early stage of pelvic ulceration the bleeding is usually slight and intermittent; when, however, a cortical deposit sloughs out suddenly into the pelvis, there may be profuse and dark but transient hæmaturia. Place the initial deposit, however, where you will, one area rapidly invades the other, and their different symptoms blend together. Take them in their entirety, and you will find them markedly like those of stone in the kidney, so similar, in fact, that a differential diagnosis in the incipient stage is a matter of the greatest difficulty; the renal pain radiating to the testis, groin, thigh, and knee; the recurring, often agonizing, colic; the blood and pus in the urine, the frequency of micturition, and the penile pain after the

evacuation of the bladder—are all common to both disorders. If operative procedure in the shape of nephrotomy or nephrectomy is to be a success, it must be employed early, before the lower sections of the tract have become implicated. Everything therefore depends upon a correct and timely diagnosis.

Our capacity for differential diagnosis here, as in other and similar difficulties of urinary surgery, will depend much upon our skill in cross-examining for the onset and initial symptoms, and upon our due appreciation of the nature and intensity of the irritation which has produced them. We recognize that in stone we are dealing with a foreign body confined more or less loosely in a sensitive space, and dependent therefore for its power of inflicting injury (as evidenced by the blood and pus in the urine) upon the exercise which the patient takes. On the other hand, in tubercle we realize that we are grappling with one or more foci of short-lived tendencies—rapidly productive, therefore, of puriform urine; of caustic and continuous irritative properties—beyond, therefore, the calmative control of posture or of bodily rest. I believe that the best indications for the diagnosis of renal tubercle are to be found in the family history of the patient; in the appearance of pus in the urine very soon after if not coincidentally with the renal pain; and in the powerlessness of absolute rest to affect or subdue the symptoms.

Other differences however exist, and an attempt may be made to tabulate them thus:

<i>Primary Renal Tubercle in Early Stage.</i>	<i>Renal Stone in Early Stage.</i>
Family history of phthisis or cancer.	Family history negative, or of gout or gravel.
Age: between 20 and 40.	Age: About 40.
Personal history: Perhaps tuberculous bones, joint or gland disease; a very rarely any previous urinary symptoms.	Personal history: Negative, except perhaps the passage of gravel; of a "weak" loin; of testicular neuralgia or "sciatica."
Symptoms, onset: polyuria of a murky type (the frequency of micturition being due to the	Symptoms, onset: vague lumbar aching or a sudden colic. Frequency of micturition,

quantity passed, not due to irritation; small quantities passed often, and in day—not at night—relieved by rest.

irritation), vague lumbar pain, or a sudden chill, and severe pain in one kidney, but rarely colic. Some frequency of micturition in the early stages at night, from irritation of acrid urine.

Colics appear later, are usually less severe, are more easily under the control of drugs, do not usually retract the testicle, and are preceded by rose-red blood, if they are induced by ulceration and not blockage.

Colics: More or less severe, according to composition and size of stone, followed by blood.

Hæmaturia: Slight in amount, more or less persistent, uninfluenced by rest.

Hæmaturia: Intimately mixed; much more marked than in tubercle; dependent on exercise.

Urine: Cloudy at the outset from admixture of mucus and pus. Acid, low specific gravity. Light-colored, depositing a thin layer of pus with streaks of blood, *débris* of connective tissue. Small clumps of caseous material. Albumin appears early,

Urine: Clear at outset, containing evidences of calculus in the shape of crystals. Acid, normal specific gravity. Pus later in course of case, and then only forming a deposit when pyelitis has been induced.

Tubercle bacillus found, but with difficulty and after much search, in acid urine.

Inoculation of urine deposit into animals (Rovsing, Jacobson).

General condition: Patient ailing, "never feels well," is anæmic, easily tired; no loss of appetite.

General condition: Patient may enjoy first-rate health between colics.

Polyuria may not always be present; but when it is, the frequency of quantity soon gives place to the frequency of irritability. Less is passed at a time and more often. This vesical irritability is due to the acrid state of the tuberculous urine which causes swelling and excoriation of the mucous membrane of the trigone and prostatic urethra. The swelling and congestion is very obvious with the cystoscope.

DANGERS OF INJUDICIOUS TREATMENT.

The irritability of the bladder, though mild at first, and the presence of pus and

débris in the neutral urine—for it has now probably passed the acid stage—tempts the practitioner to fly to the routine treatment of washing out the bladder, under the supposition that he is dealing with a subacute cystitis. Often as not by this means subacute cystitis is set up, the epithelium is denuded by the various antiseptics or caustics recommended for the cure of cystitis regardless of its cause, and the way is thus unpaved for inoculation. Worse still, septic changes are often induced by septic catheterism, and what before was tinder, is now fire. This mistake happens much more easily when the renal tubercle is “latent” and does not show signs of life until the bladder gives the alarm. What ought to be our treatment? If a case with symptoms suggestive of renal tubercle did not improve—and they often do most markedly with change of air, fatty food, and sandal oil by mouth—an exploratory lumbar nephrotomy ought to be done, the capsule split, and the pelvis opened through the renal structure. By this means we should at once clear up the diagnosis and remove any stone that was the cause or the effect of the trouble. By opening into the pelvis the lower ureter would be placed at rest, and the stream of irritating urine would be diverted. By splitting the capsule the intra-glandular tension would be reduced, and the pain consequent upon the backward pressure would be subdued. Moreover, the wholesale destruction of the secreting tissue might be averted by relief of injurious tension. By drawing the kidney into the loin and fixing it there, any fluid deposit could be evacuated at once and a way left for the subsequent sloughing out of the more solid foci.

PRIMARY VESICAL TUBERCULOSIS.

The efflorescence of the first patch of primary vesical tubercle or the first appearance of the track of the invading ureteric or prostatic contagion, can be readily and distinctly seen with the electric cystoscope.

With the latter sources of invasion we have not to deal at present, beyond mentioning that in each of these separate conditions the portion of the bladder first affected is different. Primary vesical deposits usually appear first upon the posterior wall. Ureteric invasion shows itself first at the ureteral orifice and along the corresponding outer limb of the trigone. Prostatic deposit creeps-in at the urethral opening and spreads itself out uniformly in the trigonal submucous layer. The symptoms of primary tuberculosis are very characteristic. A young male, 16 to 25 years of age, often without any venereal history, with a family tendency to tubercle, suddenly experiences a pain in the glans or mid-penis whilst urinating. There is an almost immediate increased frequency of micturition in the day. Soon the night is much disturbed by constant calls to empty the bladder. These symptoms are followed in a variable time, according to the acuteness of the disease, from a few days to a few months, by the appearance of blood in the urine. The blood is often profuse and very bright at one time or other in the course of the early stage, from sloughing out of the deposits; but these attacks are for the most part transitory, and the patient usually only sees a few drops of blood follow the end of the stream of urine, strained out as it were by his efforts to get rid of “something.” I am quite aware that upon the symptomatology of this and of other sections of urinary tubercle, we are taught differently; but we must realize that in precystoscopic times there were no means, except by rare *post-mortem* examination, of checking our knowledge of the course of the symptoms, step by step, as they arose. In 76 per cent of the cases, frequency of micturition and penile pain are the first symptoms; but in the smaller number, in which I suspect a secondary vesical deposit from an extra-urinary focus sloughs out, hæmorrhage is the onset symptom. The stream of urine is often

arrested, but if we inquire carefully into the cause for this, we will find that the patient checks it *voluntarily* on account of the pain; the sudden cessation, therefore, is not due to the abrupt corkage of the urethral orifice with a stone. After a few months, the bladder becomes contracted so that it cannot contain more than 6 to 8 ounces, and so marked is the distension-reflex, that the patient will often kick or groan, even when the corneal reflex has been abolished by ether, if the bladder is forced by syringe-pressure to contain more. The urine from the very first contains traces of pus, and this increases rapidly to a thin but distinctly visible deposit. It is more or less murky, of a light color, of normal specific gravity, and it remains acid until the surgeon makes it alkaline by interference. At first there are well-marked periods of quiescence, often for a fortnight or more at a time, and in these periods the irritability, pain, and blood disappear, or nearly so. From this we can readily understand that, to a superficial observer, the symptoms of primary vesical tuberculosis are very like those of stone in the bladder. We encounter the same irritability, the same pain in the glans after urination; the blood, pus, and murky urine; the stoppages in the stream, and the periods of quiescence in both. There are, however, points of difference both in the patient, his symptoms, and his urine, which will at once lead us to doubt the existence of stone. His youth, his family history, the distressing irritability of the bladder at night, the sudden and causeless appearance of bright hæmaturia not increased by exercise nor checked by rest, the sudden relief of the supra-pubic pain, and the rapid disappearance of the glans pain after the evacuation of the bladder; the persistent post-scrotal pain; the very light, acid, murky, scentless puriform urine which is passed at the very outset of the trouble; and, finally, the periods of quiescence being uninfluenced by violent exercise, point to the tuberculous,

and not to a calculous nature of the disease.

DANGERS OF INJUDICIOUS TREATMENT.

Septic infection and excessive zeal sum up the dangers. I will admit that for one not using the cystoscope, the sound, in doubtful cases, is most necessary. Let me, however, urge all possible gentleness and cleanliness in sounding. Tubercle resents the slightest manipulative roughness. Put the patient to bed, boil the sound, use it well warmed and oiled, and with as light a hand as possible. I have already mentioned the danger of introducing septic material, in washing out the bladder. No antiseptic wash will help us to stamp out tubercle. Germicides will only increase the cystitis and widen the field for invasion. Iodoform has no curative powers. Washing out the bladder with boiled water will relieve the pain in the early stages, and often check the blood. Above all things, we must not explore digitally and then salve our conscience with the assumption that the drainage will do good. Drainage gives no permanent relief unless the tubercle is removed, and it very often leaves an obstinate perineal fistula; whilst in women with tuberculous bladder, it not infrequently produces total incontinence of urine. Opium, sandal oil, sea air, and occasionally washing out the bladder, will often work wonders. If these measures fail, there is still the cauterization of the tuberculous deposits under electric light, or the more unsurgical method of wholesale curettage through a supra-pubic incision to fall back-upon.

OBSOLETE VESICAL TUBERCLE.

It is of importance to remember that vesical tuberculosis obsolesces by burning itself out. The mucous membrane is more or less completely destroyed and sloughs away. An inelastic, stiff-walled, little reservoir of the capacity of 3 ounces remains. The patient is free from any pain. His stream is forcible, but thin and of short duration; the urine is clear, but he is worried by the fre-

quency of incapacity, being only able to retain a wineglassful at a time. Every half-hour by day and night the urine is passed, and he clamors for some relief from the distressing frequency, the annoyance of the urinal, and the chafing of the abraded, urine-sodden genitals. Similar contraction of the bladder results from other forms of interstitial cystitis,—for example, that due to calculus, stricture, perimetritis, etc.

DANGERS OF TREATMENT.

The well-known value of dilating, by means of hot water injection, bladders contracted by the concentric hypertrophy of disuse, suggests to the practitioner the use of the same method in every case of contracted bladder; but often the result is disastrous. There is no bladder so rigid, so inelastic, so intolerant of distension as the "cured" tuberculous bladder. No muscle-plane proves so friable as the stiffened fibromuscular wall left by the disease in question. If we attempt to dilate such a bladder, we must expect hæmorrhage or recurrence or subperitoneal rupture in the neighborhood of the ureter. Leave well alone, and modify by drugs the acidity of the urine.

PRIMARY TUBERCULOUS PROSTATITIS.

The majority of cases of primary prostatic tuberculosis are recognizable *per rectum* by the discovery that one or both lobes are occupied by one or more hardish nodules, which vary from a small shot to a horse-bean in size. Moreover, the persistency of the irritability of the bladder, the unrelievable pain in the perineum and glans penis after micturition, the occasional appearance of blood at the end or at the commencement of the stream, the agony of instrumentation, together with the presence of pus and *débris* in the urine,—will be enough to guide us, after the rectal examination, to a correct solution of the nature of the trouble. Sometimes, however, the deposit is buried in a general swelling of the prostate provoked by the irritation of the tubercle. When this is so, rectal examination—even

with a highly-educated finger—is inconclusive, for a prostate of precisely similar shape is encountered after a gonorrhœal attack has been grafted on a prostate enlarged and indurated by early and excessive masturbation. For my own part, I am myself unable to differentiate between these two conditions, and have lately relied upon an injection of a weak solution of tuberculin, or I have withheld my diagnosis and all topical treatment until the subsidence of the general swelling or the implication of the vas or testis has permitted of a certain diagnosis being made.

DANGERS OF TREATMENT.

The usual method of treating chronic prostatitis by deep injections, sweeps the tubercle into the bladder, and thus one of the natural barriers to the spread of the disease is broken down. The cauterization of the prostatic mucous membrane is often followed by severe reaction in tuberculous cases, and tends to excite abscess in the deeper parts of the prostate—a result which in these cases is fraught with danger; for the prostatic tissue under these circumstances is apt to be completely shelled out by sloughing, and an incurable incontinence is the result. Avoid, therefore, all instrumentation.

PRIMARY URETHRAL TUBERCULOSIS.

I believe a primary urethral deposit to be most rare. It should afford, however, a better prognosis here than in any other part of the tract, for the constant passage of urine over the surface sweeps away the irritating secretions. Although I can only point to one case of *primary* disease—and that I mistook for stricture until I had examined with the electric urethroscope—yet I have had several cases in which the urethra was invaded from foci in the prostate and bladder. A consideration of these permits me to state that when tubercle affects the bulbo-membranous section of the canal, it is very likely to be mistaken for stricture, for the swelling offers a decided obstruction

to the exploring *bougie à boule*. We recognize the difference between this swelling and stricture by the extraordinary amount of pain which is caused by the most delicate instrumentation, and this even after a strong solution of cocaine has been previously applied. The surface bleeds on the slightest touch, and severe rigors often follow any examination. These are not only

alarming, but are positively dangerous when the kidney is latently affected. A perineal fistula—Nature's attempt at a radical cure—often forms rapidly in the post-scrotal region. All manipulation is out of the question, but much good may be done by iodoform urethral bougies gently insinuated into the deep urethra, the general health being at the same time well supported.

NEW REMEDIES,

AND NEW LIGHT ON OLD ONES.

BORIC ACID AND BISMUTH SUB-GALLATE IN OTORRHOEA.

According to DR. S. CHANIAVSKY, who has had occasion at the Military Hospital of Alexandropole to test all the antiseptics and astringents recommended against otic discharges, the best means of combating either an acute or a chronic otorrhœa, excepting, of course, certain surgical measures, consists in injections of a 3% solution of BORIC ACID, followed by a careful and thorough drying of the parts with absorbent cotton, and the introduction of a cotton tampon impregnated with BISMUTH SUB-GALLATE.

BROWN-SEQUARD'S TESTICULAR FLUID.

At a recent meeting of the ACADÉMIE DES SCIENCES at Paris, Drs. BROWN-SEQUARD and ARSONVAL made some new communications on the therapeutic action of testicular juice administered hypodermically, which may be briefly summarized as follows:

1.—The affections produced by organic lesions of the nervous system or by an impairment of its functions—contractures, general paralysis, locomotor ataxia, and certain forms of insanity—are cured or ameliorated by these injections.

2.—The organic or constitutional diseases due to defective nutrition of the organs—such as anæmia, glycosuria, and tuberculosis—are arrested by this procedure.

The facts that were cited in connection with the subject of tuberculosis, appear to be sufficiently important to be considered at greater length. The authors have treated 83 tuberculous patients with subcutaneous injections of the testicular fluid. In no instance, it is reported, did this liquid, filtered and sterilized, occasion any untoward secondary symptoms; only nine of the patients died, and 74 are considered as cured. Not only did the morbid reflexes, caused by the pulmonary irritation and determining the formation of the tuberculous neoplasm, disappear, but the improvement of the nutrition, produced by the action of the medicament, permitted the organism to become master over the morbid process already in a fair way for evolution. If it is so that it is necessary to destroy the cause of the disease to arrest its evolution, the medications that kill the microbe—which is believed to be but a secondary agent in tuberculosis—would be inefficacious; alone the substances which fortify the organism, by increasing the power of the nervous system and, consequently, the nutrition of the organs, would constitute a rational treatment.

TURPENTINE OIL has been found to be a powerful *deodorant of iodoform*, particularly serviceable in removing the odor of that drug from the hands, spatulas, mortars, etc. Wash with a little of the oil, and, half a minute later, with ordinary soap.

CREASOTE IN LARGE DOSES IN SCROPHU-
LOUS CHILDREN.

Prof. SOMMERBRODT, of Breslau, obtains excellent results in scrophulosis from the administration of *large doses* of CREASOTE, employed either in the pure state (taken with milk or wine), or mixed with cod-liver oil (taken in capsules). In children under seven years of age, it is advised to commence the treatment with three drops of CREASOTE a day, and to increase the dose slowly until 0.5 or even 0.75 gramme [$7\frac{1}{2}$ –12 minims] of pure CREASOTE are being taken daily. In patients above seven years, it is stated that the daily dose of 1 gramme [15 minims] can easily be reached within eight to ten days. It is rarely necessary, according to the professor, to go beyond that dose; but, if need be, it may be exceeded without harm.

KOLA NUTS;—COMPOSITION.

According to DR. ASTIER (*Monde Méd.*), KOLA NUTS have the following composition:

	per cent.	
Caffeine	2.348	} Matter soluble in chloroform, 2.983%.
Theobromine	0.023	
Tannin.....	0.027	
Fatty substances.....	0.585	
Tannin.....	1.591	} Matter soluble in alcohol, 5.826%.
Kola-Red.....	1.290	
Glucose.....	2.874	
Fixed Salts.....	0.070	
Starch.....	33.755	
Gum.....	3.040	
Coloring-matter.....	2.561	
Proteids.....	6.761	
Cellulose.....	29.831	
Water.....	11.919	
Ashes.....	3.325	
Total... ..	100.000	

MERCURY BENZOATE AS AN ABORTIVE OF
BUBOES.

Last year Dr. WELANDER, physician to the Saint-Göron Hospital, Stockholm, announced an abortive treatment of buboes with which he had obtained a cure in 91 per cent of the cases where that treatment had been institu-

ted before free suppuration of the tumors had set-in (see “MERCK’S BULLETIN,” Vol. IV., p. 154).

Since then Dr. L. LÉTNIK, physician in charge of the venereal division of the City Hospital at Odessa, has tried WELANDER’S treatment in 140 patients with buboes, and has obtained complete resolution in 120—that is to say, in more than 87 per cent of the cases. In the remaining 18, all cases in which there was already marked suppuration when the treatment was begun, he was obliged to incise the tumor.

Dr. LÉTNIK proceeded as follows (*Sem. Méd.*):

After having carefully disinfected the inguinal region, 1 cubic centimetre [16 minims] of a 1% solution of MERCURY BENZOATE was injected into the swollen gland. This done, a compressive bandage (composed of cotton and a linen bandage) was applied over the bubo, and renewed once or twice in twenty-four hours. The patient had to observe the most complete rest during the whole treatment.

Immediately after the injection there developed, at the site of puncture, a burning pain, which gradually disappeared in eight to twelve hours. In the evening and on the following day, the patients usually experienced a little cephalalgia, and presented an elevation of temperature amounting to 1° C [1.8 F] or more. Locally, an inflammatory reaction manifested itself by an excess of heat and of redness; however, these symptoms soon vanished, and the bubo progressively diminished in size and, in the majority of the cases, disappeared entirely in six to ten days. Only in twelve patients did the complete resolution of the tumor require as much as twenty days. The average duration of the treatment was a little less than ten days. This certainly brilliant result was obtained in the great majority of the cases from but a single injection, and it was necessary only in a few rare cases to

make a second injection at an interval of eight days from the first.

In the course of his observations the author has become convinced that it is not at all necessary to use the benzoate of mercury for the injections into the buboes, but that the same results can be obtained by injecting *any soluble mercurial salt*—the bin-iodide, bi-chloride, or cyanide, always in doses of 1 centigramme [$\frac{1}{16}$ grain].

Dr. LETNIK believes that this method deserves being tried also for aborting acute phlegmons, suppurating arthrites, and abscesses consecutive to infectious diseases, whenever the morbid focus is accessible to injection and to compression with a bandage, and when the suppuration is yet in its incipency.

NON-VENOMOUS AND ANTIDOTAL ACONITE.

In Indian medicine, much attention is paid to *Aconitum heterophyllum*, which, according to Prof. H. BAILLON (*Traité de Botanique Médicale*) is identical with *Aconitum Atees* and *Aconitum cordatum* of ROYLE, and closely resembles the *Aconitum Napellus*. Its grayish ovoido-conical tubers are sold at the bazars under the name of "Atis" or "Átees;" they are believed to be non-poisonous, and thus also free from aconitine. They are prescribed in powder form as tonics and anti-periodics, and as invigorating medicines during convalescence from serious diseases. In the province of Yun-Nan, China, the roots of two varieties of Aconite are sold as *antidotes to arsenic*, under the name of "Toula,"—a fact communicated to the author by Father DELAVAY, a missionary who has thoroughly explored that country. The mandarins are accused of frequently resorting to poisoning in order to get rid of persons who are objectionable, especially from a political or religious point of view. For this purpose they employ chiefly certain arsenical preparations. When, subsequently to a suspicious repast, the invited guests experience the first effects

of the poisoning, they take as many as half a score of the Toula tubers; and this remedy, it is reported, cures them. It appears that these Toulas belong to a species of aconite which M. FRANCHET has lately described under the name of *Aconitum Delavayi*. It seems very remarkable to the author, that these tubers should belong to a plant which it is impossible to distinguish specifically from the *Aconitum Napellus* of Linnaeus, of which he considers it but a simple form. Still, it is at least probable that only the *Aconitum Delavayi* produces the true Toula.

OZONE IN PULMONARY TUBERCULOSIS.

According to Dr. P. LE STUNF, OZONE prepared by means of electric currents, and in the proportion of $\frac{1}{10}$ milligramme [$\frac{1}{640}$ gr.] for each litre [61 cubic inches] of air, is completely innocuous, not only to animals but also to healthy or diseased man. After several applications of the inhalation of OZONE, the co-efficient of oxy-hæmoglobin is raised from 1 to 2 per hundred. OZONE may be administered to the sick with the greatest ease, it is maintained, in the form of inhalations, and by means of very simple apparatuses. Its action is reported to be well supported by tuberculous patients, when administered in therapeutic doses, and it produces no immediate disturbance; after fifteen to twenty sittings, the improvement is perceptible. It is a question in the author's mind whether the OZONE does not act as a microbicide in tuberculous individuals; he asserts that it acts on the blood and the nutrition. The appetite returns, the digestion improves, and the night-sweats diminish; sleep sometimes re-appears even in patients that have for a long time been tormented by insomnia. According to the writer, there is also an amendment of the pulmonary lesions; real retrogression of the local phenomena. However, as is known, all practitioners are not of the same opinion on this point.

CAMPBOR SUBCUTANEOUSLY IN PULMONARY EMBOLISM.

Little or nothing being as yet known of the treatment of pulmonary embolism, the following case, observed by Dr. OEDER at the AUGUSTA HOSPITAL (Berlin), and successfully treated by means of hypodermatic injections of camphorated oil, is certainly deserving of attention.

The patient was a woman of 44 years, affected with advanced mitral insufficiency and stenosis, and presenting at the same time a uterine myoma as large as a man's head. When first seen, she was almost unconscious, cyanosed, algid, and covered with cold perspiration, and there was severe dyspnœa. The pulse was regular, small, and frequent (about 120 a minute) loud; râles were heard over the trachea and over the entire extent of both lungs, completely drowning the respiratory murmur and the heart-sounds. Percussion also gave no definite results, but in view of the auscultatory signs and the subjective symptoms, and in consideration of the existing heart-trouble and the myoma, which afforded ample opportunity for the appearance of venous or cardiac thrombi, the diagnosis of embolism of a large branch of the pulmonary artery was arrived-at.

Hypodermatic injections of camphorated oil, each representing (according to the *Berl. Klin. Woch.*) 0.2 gramme [3 grains] of CAMPBOR, were immediately resorted-to and repeated every 5 minutes. After the third injection a manifest improvement was observed; the pulse was stronger, consciousness returned, and the patient complained of an intolerable sensation of suffocation. This was calmed by an injection of 0.01 gramme ($\frac{1}{16}$ grain) of morphine, and the CAMPBOR injections were continued. At the end of an hour the improvement was considerable: the symptoms of pulmonary œdema had disappeared, and the respirations (which previously could not be counted) had diminished to 36 per minute. The next day the patient expectorated an abundance of bloody sputa, and the physical examination of the chest revealed, on the right side and posteriorly, two foci of pulmonary infarction, as well as increased cardiac dulness extending 4 centimetres [$1\frac{3}{8}$ inches] beyond the middle of the sternum. After a few days all the symptoms of infarction disappeared.

Dr. OEDER thinks that if the embolism had persisted, the case would certainly have ended fatally; fortunately, in consequence of the energy of the cardiac contractions produced by the camphor injections, the embolus was detached and reduced to fragments, which then provoked the formation of the foci of infarction.

It should be noted that, in the above case, as much as 2.4 grammes [36 grains] of CAMPBOR was injected subcutaneously within one hour.

AGATHIN;— A NEW ANTINEURALGIC AND ANTIRHEUMATIC.

"AGATHIN" is the name proposed for Salicyl-aldehyd-methyl-phenyl-hydrazone, a substance first prepared about half a year ago by I. Roos, a chemist of Frankfurt-on-the-Main. It is described (*Pharm. Zeitung*) as occurring in small, white, odorless and insipid leaflets, which melt at 72° C [161.6 F] and are insoluble in water, but soluble in alcohol, ether, and benzene; its formula is $C_6H_4.OH.CH:NH.CH_3.C_6H_5$. According to a number of practitioners of Frankfurt-on-the-Main (E. ROSENBAUM, EBELING, J. SCHMIDT, L. LACQUER, and L. LOEWENTHAL), AGATHIN is possessed of antineuralgic and antirheumatic properties: in doses of 0.5 gramme [$7\frac{1}{2}$ grains] two or three times a day, it has given good results in sciatica, in trigeminal neuralgias of grippal or other origin, in a case of very intense neuralgic pains in the chest and back of a diabetic patient, and in articular rheumatism. On several occasions the AGATHIN is reported to have been efficacious after all the other analgesics previously employed had failed; on the other hand, a number of cases

proved more or less refractory to the medicament.

The action of AGATHIN does not manifest itself immediately, but first in a few days—when 4–6 grammes [1–1½ drs.] of the medicament have been taken. In daily doses of 1.5 grammes [23 grains], AGATHIN is said to be well borne, as a rule; sometimes, however, it gives rise to transient headache, or to slight nausea which yields to the employment of lemonade.—(AGATHIN is not as yet in this market.)

BETA-NAPHTHOL BENZOATE AS AN INTESTINAL ANTISEPTIC.

The physical and chemical properties of BETA-NAPHTHOL BENZOATE, called for short, “Benzo-naphthol,” have been described in a previous number of this journal. Since its introduction into therapy, this medicament has been extensively experimented-with, and has proved to be what its discoverers (Drs. YVON and BERLIOZ, of Paris) claimed,—a very slightly toxic and remarkably powerful intestinal antiseptic. Recently Prof. C. EWALD, of Berlin, has found BETA-NAPHTHOL BENZOATE of the greatest service in various dyspeptic disturbances, particularly when associated with bismuth salicylate and resorcin, in some such formula as the following :

Beta-naphthol Benzoate.....	} equal parts.
Bismuth Salicylate.....	
Resorcin (resublimed, medicinal)	
Powdered Star Anise	
Or some other aromatic.....	a sufficient quantity.
A teaspoonful every two hours.	

As a teaspoonful corresponds to 1½ grammes [23 grains] of dry powder, the patient takes each time about half a gramme [7½ grains] of each of the three antiseptics, which, if desired, may be prescribed in cachets; in the latter case the aromatic powder may be omitted.

As with all other medicaments, BETA-NAPHTHOL BENZOATE was not found to be absolutely infallible; furthermore, in a few

exceptional cases, intestinal colic and diarrhoea survened from the use of the remedy, but promptly disappeared upon discontinuing the administration.

PHENOSALYL,—A NEW COMPOUND ANTISEPTIC.

At Pasteur’s Institute, Paris, Dr. DE CHRISTMAS has for some time past been engaged in the study of compound antiseptics—that is, mixtures of several bactericides; a report on his earlier experiments has been published in the April number of the current volume of this journal. More recently he has been devoting his attention to a mixture of antiseptics, which he calls “PHENOSALYL,” and which has the following composition :

Carbolic Acid.....	90 parts.
Salicylic Acid.....	10 “
Lactic Acid.....	20 “
Menthol.....	1 part.

The three acids are heated up to the point of liquefaction, when the menthol is added. The mixture is reported to be very soluble in glycerin, and easily soluble in water to the extent of 4 per cent.

The author has made a careful comparative study of the action of PHENOSALYL on the staphylococcus aureus, the schizophyte, most resistant to the influence of chemical bactericides, and has found it to be possessed of enormous antiseptic power; the latter is almost double that of its two constituents—carbolic and salicylic acids—taken separately, and is exceeded only by that of corrosive sublimate.

PYOKTANIN IN DIPHTHERIA.

Dr. JAENICKE, of Görlitz, reports (*Ther. Monatsh.*) on the results obtained from the local use of a saturated solution of PYOKTANIN in a number of cases of genuine diphtheria. The false membranes were gently rubbed with a cotton, wad impregnated with the solution, until thoroughly stained blue, once every 2–5 hours,—according to how rapidly the blue coloration disappeared.

As a rule, as early as on the second or

third day of this treatment, the temperature fell to the normal, the pains diminished or even entirely disappeared, and the appetite returned. Of course, in far advanced cases, where the diphtheritic poison had already been absorbed into the blood—giving rise to septic intoxication, the local application of PYOKTANIN could not save the patient.

In conclusion, the author warmly recommends PYOKTANIN as a remedy in diphtheria, for the following three reasons: (1) because it possesses extraordinarily great antiseptic power over Löffler's bacillus, the cause of genuine diphtheritis; (2) because it clings to the pseudo-membranes and the epithelium of the buccal mucous membrane for an unusually long time, and thereby exerts a correspondingly lasting antiseptic action; and (3) because it is non-poisonous.

RESORCIN IN HOSPITAL GANGRENE.

At a meeting of the SOCIÉTÉ DE THÉRAPEUTIQUE, Dr. HALLOPEAU, of Paris, reported a case of hospital gangrene which had followed the development of ulcerations on the right leg, the result of a bullous erythema. These ulcerations had been treated, in the beginning, with a carbolized dressing, but with no effect; salol giving equally negative results, RESORCIN was resorted-to—in 2% solution, applied on compresses. This treatment rapidly wrought a complete change in the ulcerations, which, after a few days, presented an excellent aspect and were entirely covered with healthy granulations.

SALT-WATER ENEMATA IN HÆMORRHAGE.

Dr. R. F. GILL, of London, again calls attention (in a letter to *The Lancet*) to what he believes to be a very good substitute, in an emergency, for intravenous injection of salt water in cases of grave hæmorrhage,—to wit.: rectal injection of saline solution. In 1888 he published an account of a patient who was apparently dying from post-partum hæmorrhage, but who, he firmly believed, owed her life

to the enemata, the immediate effects of which were striking. Since then the author has repeatedly seen the method used in cases of large losses of blood at the UNIVERSITY COLLEGE HOSPITAL; he considers it particularly valuable to the medical man attending midwifery cases, because so few practitioners carry the necessary apparatus for venous transfusion, and because it is extremely difficult when the patient is throwing herself about (and perhaps losing blood all the time) and one is single-handed, to perform the latter delicate operation; whereas the enema can be prepared by the nurse, while we control the uterus,—the injection being made without relaxing our attention to the *fons et origo* of the mischief. Small injections (4–6 fl. oz.) are preferred by the writer, inasmuch as no risk is run of exciting the bowel to expel its contents; the injections are repeated every fifteen minutes until the patient can retain liquids given per os, when both means may be continued as long as necessary.

SILVER NITRATE IN DIPHTHERIA.

Dr. PILIÈRE, of Paris, has since two years been treating diphtheria by means of swabbing the throat morning and evening with a cotton tampon saturated with a 1:30 solution of SILVER NITRATE. He rubs the affected parts pretty briskly, so as to detach the false membranes; then the throat is sprayed with a 1:300 solution of corrosive sublimate, in children above two years of age, and with a 1:1000 solution in younger children,—the spraying being repeated every two hours during the day and every three hours of the night. It is stated that no untoward effect is produced by this treatment, and that the diarrhœa which might occasionally occur will disappear of itself.

PINEAPPLE JUICE has been recommended as a *solvent* of diphtheritic membranes; it is believed that it contains a digestive ferment analogous to papayotin.

PRACTICAL HINTS

ON METHODS IN THERAPY, PHARMACY, ETC.

ALBUMINURIA IN EPILEPSY.

According to the investigations of Drs. VOISIN and PÉRON (*Arch. de Neur.*), transient albuminuria follows a fit in about fifty per cent of epileptics. The amount of albumin is generally increased, to a certain extent, in proportion to the number of epileptic attacks; it is greatest in those cases where there is marked cyanosis and congestion of the face; the albuminous excretion reaches its maximum as a rule in the first two hours subsequent to the last fit. In status epilepticus the urine always contains albumin; therefore eclampsia and epilepsy cannot be distinguished by the presence or absence of albuminuria.

ANTIPIRETICS;—COMPARATIVE ACTION OF A FEW.

DR. LUDWIG REICH has reported to the BUDAPEST ROYAL ASSOCIATION OF PHYSICIANS the results of his experiments with Antifebrin, Antipyrine, Sodium Salicylate, Morphine, Alcohol, and Chloral Hydrate, on rabbits, in which a high fever had been produced artificially by infection. The objects of the experiments were to determine how soon after the administration of the medicament its physiologic action set in, how long it continued, and when the previous condition was again attained.

It was found (as stated in the *Aerztliche Praktiker*) that the antifebrin lowers the fever the most and provokes the longest afebrile period of the first three drugs mentioned above; it depresses elevated temperature twice as rapidly as antipyrine and sodium salicylate; in doses up to 50 centigrammes [$7\frac{1}{2}$ grains], the afebrile condition persists more than 3 times, in doses greater than 50 centigrammes, $2\frac{1}{4}$ times as long as after the employment of antipyrine, and $1\frac{1}{2}$ times longer than with sodium salicylate. The two latter antipyretics depress the fever in

approximately equal times; but with sodium salicylate the apyretic period lasts twice as long as it does after the administration of antipyrine, while the latter can reduce the temperature by $1-1\frac{1}{2}\%$ further than can sodium salicylate.

Morphine proved to be the strongest antipyretic of all; it lowered the temperature further than did antipyrine,—down to $30-25^{\circ}$ C [$86-77^{\circ}$ F],—without causing any harm whatever to the animal.

Alcohol and chloral hydrate were also found to have a powerful antifebrile action, but still inferior to the other medicaments tested.

ANILINE DYES;—THEIR ANTISEPTIC POWER.

According to DR. C. PRIoux, two of the aniline pigments—Pyoktanin and Gentian Violet—have an antiseptic value; in the strength of 1:100 they prevent all development of micro-organisms; in 1:500 and even 1:2000 dilution, they arrest the cultures of the typhoid bacillus and of the bacillus coli communis.

In 1% solutions of Safranine, Eberth's bacillus does not develop; but, according to the investigator, 1:2000 dilution does not prevent the development of the bacterium coli communis and of the streptococcus aureus.

It is maintained that the violet aniline colors constitute the most powerful antiseptics,—particularly in simple and ulcerative keratitis; the results are less satisfactory in purulent or gonorrhœal ophthalmias.

CREASOTE IN CONSUMPTIVES.

DR. BURLUREAUX (*Mouven. Thér.*) gives up all phthisical patients that bear CREASOTE poorly. In general, he considers the fact of perceiving the taste of CREASOTE, particularly after the administration of *small* doses, a sign of intolerance, but one of secondary

value; the black coloration of the urine, if it occurs accidentally or after the use of large doses, does not indicate intolerance, it is held; but if a *small* dose of CREASOTE produces blackish or black urine and this quite frequently, the physician ought to be extremely circumspect. The vertigo, the drunkenness, even the torpor, the extreme prostration, the impossibility of associating two ideas, do *not*, in the author's opinion, indicate intolerance; these symptoms are rare, and of short duration. Sweating, after the injection of CREASOTE, does not indicate intolerance; but this symptom may accompany a febrile movement, and then two phenomena may present themselves,—to wit: (1) the fever is perceptible only to the thermometer; there is no change in the general condition. It is advised, in such cases, to continue the treatment, and to diminish the doses, if necessary; tolerance will be established. Or (2) there are malaise, violent chills, cephalalgia, and a sensation of cold; the extremities are icy, respiration is slowed and the pulse is small,—recalling the algid form of the pernicious fevers. The crisis lasts scarcely three-quarters of an hour, and is often followed by a comfortable condition. In such cases, it is recommended to discontinue the CREASOTE, or rather to considerably diminish the doses, and to administer the medicament only very tentatively.

DIPHThERIA.

The false membrane is generally considered as the only proof of diphtheria and as the only soil favorable to the development of Klebs's bacillus; but, according to DR. GUELPA, as reported at a recent meeting of the Paris SOCIÉTÉ DE THÉRAPEUTIQUE, the specific micro-organism exists not only in the false membrane, but also in the saliva and the nasal mucus, and this even after the disappearance of the false membranes. From this point of view, seven cases of diphtheria in different periods of evolution and of treat-

ment were studied—the presence of the bacillus of Klebs being looked-for in the saliva, the nasal mucus, and the discharge from the canula after tracheotomy. In two cases, the inoculation of solidified serum with the saliva gave birth to numerous colonies of Klebs's bacilli; only in one of these cases were there any of the micro-organisms in the nasal mucus. In two other cases, the bacillus was found once, and cultures of the nasal secretion gave only negative results. Finally, in three children that had undergone tracheotomy, the bacillus of Klebs was detected, in greater or less abundance, in the discharge from the tube, in the nasal mucus, and in the saliva, at the same time.

These facts appear to demonstrate that it is indispensable, in the treatment of diphtheria, not to pay attention solely to the false membranes, but that it is absolutely necessary to practice frequent rinsing of the mouth and irrigation of the nasal fossæ; and that a bacteriologic examination of the saliva and nasal mucus ought to be made before declaring the disease cured or interrupting the treatment.

HYPODERMATIC INJECTIONS IN PEDIATRICS.

According to DR. LEGROUX (*Journ. de Méd. et de Chir. Prat.*) hypodermatic injections are indicated in children when the remedy cannot be given per os on account of its unpleasant taste, when the subcutaneous application is more efficacious than the oral (as is the case with ergot, caffeine, etc.), or when a prompt action is desired. Of course, such medicaments as become so altered in the stomach that their therapeutic value is lost (blood-serum, for instance), or such as are not borne in large doses (creasote and the like), can be applied subcutaneously. It goes without saying, that just in children the injections must be made with specially rigid aseptic precautions. The substances employed by the author hypodermatically, are Quinine hydrochlorate, Caffeine, Ergot and

its preparations, Ether, Morphine, Cocaine, Antipyrine, and Creasote. Quinine is used when it is desired to rapidly combat fever; a dose of 25 centigrammes [$3\frac{3}{4}$ grains], administered subcutaneously in 25% aqueous solution, is reported to act better than one of 50 centigrammes [$7\frac{1}{2}$ grains] taken internally. In pneumonia of children the employment of quinine in this manner is very efficacious, it is maintained; in intermittent fever, an injection of 0.25—0.5 gramme of this salt of quinine, given immediately after a paroxysm, can prevent the appearance of the next attack.

Ergot is considered indicated in acute nephritis with hæmaturia, as well as in scarlatinal nephritis; Dr. L. injects 1 gramme [15 grains], or 4–5 drops Ergotinin. These injections have also been employed successfully in passive congestions of the lungs, and in pneumonias slow in resolving. In rectal prolapse, incontinence of urine, and insufficiency of the anal sphincter, good results are obtained, it is claimed, from injections of 4–5 drops of ergotinin into the ischio-rectal fossa or into the fibres of the sphincter itself.

Ether, according to the author, has the same indications in children as in adults,—to wit: collapse and adynamia. For this purpose Dr. L. also considers the benzoate of caffeine and sodium indicated, in doses of 0.25 gramme [$3\frac{3}{4}$ grains], injected once or twice daily.

Narcotics are regarded as dangerous in children; and cocaine is to be administered to children but with great caution.

Injections of 10% oily solutions of creasote are reported to be well borne; 2–6 cubic centimetres [$\frac{1}{2}$ – $1\frac{1}{2}$ fl. drs.] of the solution are slowly injected. In pulmonary tuberculosis, this treatment is said to be very useful. Dr. L. employs creasote as a general antiseptic also in diphtheria.

MEDICATED INHALATIONS.

DR. A. IRSAI, of Buda-Pesth, has made some instructive laboratory observations (according to *The Lancet*) on the effects of the inhalation of various substances on the lungs and air-passages. Almost immediately after a few inhalations of air impregnated with Turpentine Oil the lungs became pale, but regained their ordinary appearance on the re-admission of pure air; a second administration of turpentine vapor was followed by the same appearances as the first. The cause of the pallor, in the author's opinion, was doubtless a spasmodic contraction of the pulmonary vessels—probably due mainly to peripheral action.

When Juniper Oil or Oil of *Pinus sylvestris* was employed, results of a similar kind, but less in degree, were obtained. The latter, however, is considered a more powerful vaso-motor constrictor than turpentine oil.

With Oil of Eucalyptus, Anise Oil, Peppermint Oil, and Menthol, scarcely any change was produced in the color of the lungs.

With Thyme Oil and Thymol, three or four inspirations were followed by a distinct reddening, which increased as they were continued.

Creasote and, in a still greater degree, Guaiacol, produced redness, there being rapid relaxation of the vessels and great hyperæmia of the lungs.

From these observations, DR. IRSAI concludes that in acute catarrhal affections with swelling, hyperæmia and profuse secretion, substances should be selected for inhalation which produce anæmia, and that in chronic torpid conditions, or in phthisis where the supply of blood and the nutrition of portions of the lung are defective, substances which induce hyperæmia should be used. Of course it is needful to exercise due vigilance in employing creasote or guaiacol in cases where there is any tendency to hæmorrhage.

OXYGEN INHALATIONS IN OBSTETRICS.

According to DR. RIVIÈRE (*Nouv. Arch. d'Obst. et de Gyn.*), who claims to have had an extensive experience with inhalations of OXYGEN in obstetrical practice, the latter are of great benefit, under many circumstances, to both the mother and the child. These inhalations are considered useful in counteracting the evil effects of respiratory diseases during pregnancy, which so frequently provoke abortion or premature delivery; in uncontrollable vomiting and anorexia they are also beneficial; in weak or sick pregnant women, the nutrition of the foetus is always improved by them; after delivery they superoxidize the blood, which in its turn appears to enable the latter to resist sepsis. The author furthermore maintains that the method is of service in placental disease, or even in partial detachment of the placenta,—allowing more complete oxidation of the foetal blood in the undetached part. On the whole, however, it is held that the inhalations of OXYGEN are of the greatest benefit to new-born babes,—whether these latter be emaciated from some cause which existed prior to birth, or whether, owing to malnutrition, they remain thin for some time after delivery.

PERFORATION OF THE CERVIX BY LAMINARIA TENTS.

Dr. BRUCHON points out a danger (*Nouv. Arch. d'Obst.*) that is attached to the incautious employment of laminaria tents. He holds that the tent should never be permitted to pass entirely into the cervix; it should be of sufficient length to protrude about half a centimetre [$\frac{1}{5}$ inch] beyond the external os while the other extremity touches the fundus uteri. It is stated that the danger of using too short a tent is most evident when there exists marked anteflexion. In such a case the womb contracts down on the tent, and thereby forces the lower end of it into the substance of the posterior lip of the cervix; a case is on record where the latter has been completely perforated in that

manner. The author has observed a case where the cervix was injured by a laminaria tent introduced to produce dilatation previous to uterine curettage, which was to be practiced for the cure of the endometritis present. The posterior lip of the cervix was almost perforated; bilateral laceration and eversion existed. However, the accident had no evil consequences; the curette was employed, and the local uterine affection cured.

PERCENTAGE OF MERCURY IN THE MERCURIAL SALTS.

At a recent meeting of the SOCIÉTÉ DE THÉRAPEUTIQUE, Dr. BOCQUILLON (*Prog. Méd.*) presented a table showing the comparative strength in mercury of the various mercurial salts employed therapeutically. The following is taken therefrom:

SOLUBLE SALTS.		Per Cent.
Aluminate.....		53.00
Bi-chloride.....		73.72
Cyanide.....		20.70
Iodide (green).....		45.50
Lactate.....		67.10
Peptonate.....		57.15
Succin-imide.....		63.30
INSOLUBLE SALTS.		
Albuminate.....		10.20
Chloride.....		84.93
Oxide.....		92.59
Phenate.....		51.68
Salicylate.....		59.00
Tannate (mercuric).....		23.80
Tannate (mercurous).....		50.00

PILOCARPINE IN EPILEPSY.

The use of PILOCARPINE, often recommended against epilepsy, ought to be discarded, according to Dr. FÉRÉ, of Paris. Far from suppressing the attacks, he thinks it rather has the tendency to provoke them. A patient of his that had had no attack for several months, had four on one day after an injection of PILOCARPINE nitrate. He believes that this salt ought no longer to be employed to favor the elimination of bromine in epileptics who have for a long time

been submitted to treatment with the bromides, and concludes that the medicament should not enter into the therapeusis of epilepsy.

PULMONARY EMBOLISM AFTER INTRAMUSCULAR INJECTIONS OF MERCURY.

At a recent meeting of the BERLIN SOCIETY FOR INTERNAL MEDICINE, Dr. BLASCHKO reported on two cases in which alarming pulmonary symptoms set-in shortly after the intramuscular injection of an insoluble mercurial suspended in liquid paraffin. In the first case there were cough, stitch-pains in the chest, and superficial respiration, associated with great anxiety. The next day there was scarcely any breathing audible over the right side, and there was much cough, with abundant mucous expectoration streaked with blood.

In the second case, a persistent cough, with the expectoration of blood-stained mucus and pains in the left side, survened half an hour after the injection of the mercurial; the respirations numbered 40 per minute, and the pulse was 100.

The treatment consisted in wrapping the patients in wet cloths. In both cases the symptoms disappeared after three days.

A third case was merely referred-to.

The author explained the symptoms by the liquid paraffin—used as the vehicle for the insoluble mercurial preparation—being carried to the lungs and producing embolism, just as fat does. Nevertheless, he considers intramuscular injections of mercury the next best method to mercurial inunction, in the treatment of syphilis; and believes that in healthy individuals, they can give rise to no real trouble, but in those with pulmonary disease, the above-mentioned facts should be borne in mind. In those predisposed to phthisis, it is recommended to give only small injections, and in those with marked pulmonary tuberculosis, to avoid them entirely.

POST-VARIOLAIC ABSCESSSES.

The study of thirty abscesses (furuncles, abscesses proper, purulent effusions) in twenty variolous patients, has enabled Drs. COMBEMALE and MARIVINT (*Bull. Méd. du Nord*) to bring out certain interesting points in the pathogenesis of this frequent post-variolaic complication.

Abscesses consecutive to variola are observed chiefly in those subjects offering a favorable soil for the development of the staphylococci contained in the variolaic pustules, either in consequence of the existence of cutaneous lesions—such as acne, furuncles, syphilides, etc.—prior to the variola; or on account of certain disturbances of the general condition, which, in the authors' observations, were due to alcoholism and to chloro-anæmia.

The treatment employed against the variolaic eruption is said to play also a part in the causation of the variolaic abscesses, and in their frequent localization on the face. Thus, vaselin applications were found to favor the development of the abscesses. In the authors' opinion, nothing is less anti-septic than vaselin, borated or not, and inunctions with boric-acid ointments merely contribute to the dissemination of the infecting germs; besides, the vaselin spread on the skin, by retarding the thinning of the derma over the variolaic eruption, retards the rupture of the latter and favors the formation of abscesses. Since he has abandoned the vaselin applications on the face, Dr. COMBEMALE claims that his patients have only very rarely presented post-variolaic abscesses in that region of the body.

REDUCIBLE HERNIA IN WOMEN;—RADICAL CURE.

In a communication made at the last Congress of the FRENCH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, and recently published as a pamphlet, LUCAS CHAMPIONNIÈRE states (according to the *Brit. Med. Journ.*) that in non-strangulated herniæ, whether umbilical,

inguinal, or femoral, radical cure is attended with very little risk in the female, and its results are, as a rule, more satisfactory than those obtained in males. In every form of hernia the use of a truss causes much more discomfort and inconvenience to the female, particularly if she be young, than to the male. The truss is constantly displaced by the weight of the underclothing, especially in cases of umbilical hernia. In at least eighteen out of twenty cases of this form of hernia, the truss, it is stated, does no effective service, although it may seem to relieve the patient. The use of a truss very rarely, if ever, causes a permanent cure of hernia in young females.

In an immense majority of cases of inguinal hernia in the female, the affection presents all the characters of congenital rupture. The dangers produced by hernia in the female are of two kinds. Pregnancy often aggravates the general conditions of hernia, which subsequently becomes much less amenable to truss-pressure. Hernia in the female is in most cases painful, irreducible, and progressive, and the sufferers become, in consequence of growing habits of inactivity, obese, emphysematous, and, it is thought, sometimes diabetic. The pain is due in the inguinal form to the connections of the sac with the internal genital organs, and to the periodical influence of menstrual congestion; and in the crural form to omental adhesions which render this kind of rupture so dangerous.

As hernia in the female is liable to cause early and rapidly-progressive organic mischief, it is advisable to intervene and effect radical cure when the subject is young. The author has operated without a single bad result in thirty-nine cases of non-strangulated hernia in women. Of these, eleven were cases of umbilical, eleven of crural, and seventeen of inguinal hernia. The last-mentioned form of hernia is, according to the author's experience, more frequently met-with in the female than is generally

supposed. The thirty-nine cases were all treated by the open method of operation, the sac having been extirpated, all protruded omentum removed, and the orifice in the parietes closed. In the cases of inguinal hernia, the round ligament was always removed, together with the wall of the sac, to which this structure adheres very closely. This procedure ensures complete closure of the abdominal opening, and so favors a substantial and permanent cure. In women the risks of recurrence of hernia after operation are held to be much less than in men, as the former do not, as a rule, undergo so much physical exertion or submit their muscles so frequently to sudden and violent action. A case is quoted in support of the author's belief that return of hernia, after operation, is not favored by the occurrence of pregnancy.

RESECTION OF THE OBTURATOR NERVE.

Dr. LAUENSTEIN has resected the obturator nerve for relief of contracture of the adductor muscles in the thigh, due to chronic myelitis. The best external guide, he says, (*Brit. Med. Journ.*) is the spine of the pubes. From the outer margin of this process a vertical incision of about three inches in length is carried downwards in front of the thigh, parallel with and to the inner side of the trunk of the saphena vein. After division of the skin, subcutaneous cellular tissue, and deep fascia, the outer edge of the adductor longus is exposed. This muscle may be easily recognized by its thick fleshy belly, and the narrow and glistening white tendon along its outer edge. To the outer side of the adductor longus, and taking a like course from above and the inner side obliquely downwards and outwards, is the pectineus.

If the fibres of the latter muscle be separated with the handle of the knife or with a director, and the margins of the slit which is thus formed be held apart by blunt hooks, the external obturator muscle will be brought into view,—under the thin fascia of

which will be seen the branches of the obturator nerve spreading out and coursing downwards and inwards. If the whole thickness of the outer portion of the wound be now drawn forcibly outwards by a blunt hook, the trunk of the nerve may be reached, and, after division of its thin covering of connective tissue, be included in a loop of silk-thread by means of a curved needle. This thread, when tied around the nerve, will prove of service by enabling the surgeon to remove with scissors as much of its trunk and branches as may be thought desirable. Whilst the nerve is being isolated, its accompanying vessels can easily be avoided.

SYCOSIS;—NEW TREATMENT.

Dr. E. KROMAYER, lecturer on dermatology and syphilography at the UNIVERSITY OF HALLE, claims to obtain a sure and rapid cure of sycosis by the following treatment (*Therap. Monatsh.*):

The hair of the affected part is cut short, and then the part is carefully depilated by removing not only the diseased but also the healthy hairs within the limits of the patches of sycosis. At bedtime the patient washes the hairy parts of the face with a cotton tampon saturated with a 1% alcoholic solution of corrosive sublimate. These washes are considered of capital importance; their purpose is to energetically disinfect the surface of the skin and the hairs, and to thus prevent the appearance of new patches of sycosis. This washing done, the following ointment is applied for the night.

Tannin.....	2 parts.
Precipitated Sulphur.....	4 “
Zinc Oxide.....	}of each, 7 “
Powdered Starch	
Vaseline.....	20 “
Externally!	

The following morning the ointment and the crusts that have formed are removed, and the part is again washed with the sublimate solution, and the ointment reapplied; if, however, the occupation of the patient

does not permit of the employment of the salve during the day, the skin is simply anointed with vaselin, or covered with rice flour or with powdered starch. So the treatment is continued, morning and evening, until the cure is complete.

When there are numerous pustules at the roots of the hairs, excellent results are obtained by incising each of the pustules and then cauterizing them with a concentrated solution of silver nitrate.

In cases complicated with considerable thickening of the skin, it is necessary, in order to obtain absorption of the infiltration, to have recourse to incisions and scarifications, sometimes even to the curette. The applications of a wet compress covered with some impermeable tissue (Priesnitz's compress, for instance,) are said to powerfully assist in the reduction of the tissues.

In the thirty cases of sycosis in which Dr. K. has employed the above treatment, the cure is reported to have been prompt and complete, although many of them were inveterate. The author believes that with the treatment recommended, the physician may be assured of curing every case of sycosis, even the most obstinate in appearance.

SYPHILITIC ULCERS.

According to Dr. I. DOTCHEWSKY, a Russian physician of wide experience, the best treatment of inveterate syphilitic ulcers of the legs is the following:

First the sore is washed with the following solution:

Carbolic Acid.....	3iiss [10 gm.].
Corrosive Sublimate.....	gr. iiii [20 ctg.].
Distilled Water.....	Oi [500 gm.].
Externally!	

Then, after drying the parts by means of absorbent cotton, a strip of Vigo's plaster two or three times as large as the ulcerated surface, is applied. If the secretion is very abundant, the wound is lightly dusted with powdered iodoform before applying the plaster. In the beginning, this dressing is removed daily; then every two, three, or four days.

At the same time, of course, potassium iodide and Gibert's syrup are administered internally.

By these means the author claims to have obtained the cure of crural ulcers which had resisted all other modes of treatment. He states that as early as after the second dressing, the wound deterges and its edges become red, and a few days later the ulcer becomes covered with granulations,—complete cicatrization being obtained in from two to six weeks, according to the extent of the wound.

TUBERCLE BACILLI;—IDENTIFICATION BY A NEW AND SIMPLIFIED PROCESS.

Since the discovery of the tubercle bacillus, every year has brought forth one or more methods of demonstrating the presence of tubercle bacilli in sputum, and about twenty methods are known at the present day. In order to distinguish the bacillus of tubercle from others existing in sputum, or in tissues, it is usual to employ acids as decolorizing agents. However, Dr. P. KAUFMANN, of Cairo, has found, as stated in *The Lancet*, that whereas most bacteria lose the stain very rapidly in boiling water, the tubercle bacillus retains it for a much longer period, sometimes over five minutes.

The following is his process:

The sputum is dried and fixed on a cover-glass, and stained with hot carbolized fuchsin solution in the usual manner. The cover-glass is then moved to and fro in water at a temperature between 208° and 212° F [97.8–100 C] during one and a half to three minutes, one minute often sufficing. The specimen may now either be mounted in water and examined microscopically, or may be subjected to any double staining process which may seem necessary. In order to obtain good results, the film must be as thin as possible, and evenly distributed, as otherwise any little lumps which may exist will retain the coloring matter even longer than the tubercle bacilli. Sometimes

the decoloration of the bacilli takes place more rapidly than usual, and therefore it is advised to continue the process only until the cover-glass presents a faint rosy gleam.

This method is probably not applicable to the examination of tissues, on account of the coagulation and imbibition that it produces. On the other hand, it may be most successfully employed, according to the inventor, for the identification of the lepra bacillus. The great advantage of this method appears to be its simplicity, as boiling water may often be obtained when acids are not to hand. There is, however, another possible advantage. The water will not continue to act when it is cooled, and in all probability the staining will remain more permanent than where acid is used, as this, unless very carefully removed or neutralized, continues to decolorize even after the specimen is mounted.

URINE-ALBUMIN TESTS;—COMPARATIVE SENSITIVENESS.

Dr. B. VAS, of Prof. KORÁNYI's medical clinic, UNIVERSITY OF BUDAPEST, has made exhaustive investigations on the practical applicability of some of the newer urine-albumin tests. According to his report (*Ungar. Arch. f. Med.*), the limit of sensitiveness of the various reagents is as follows:

	Dilution.	Per Cent Limit.
Acetic Acid—Corrosive Sublimate	1:2000	= 0.06
Nitric Acid—Magnesium Sulphate	1:7000	= 1.015
Hydrochloric Acid—Chlorinated		
Lime.....	1:10000	= 0.010
Heat.....	1:20000	= 0.005
Acetic Acid—Sodium Chloride...	1:20000	= 0.005
Acetic Acid—Pot. Sulpho-cyanate	1:25000	= 0.004
Acetic Acid—Pot. Ferro-cyanide..	1:45000	= 0.0025
Tri-chlor-acetic Acid.....	1:50000	= 0.002
Sulpho-salicylic Acid.....	1:50000	= 0.002

According to these statements, the *most* sensitive tests are Tri-chlor-acetic Acid and Sulpho-salicylic Acid. But in *certainty* of results, the latter was found to surpass the former. (For a detailed description of the Sulpho-salicylic Acid test for urine albumin, see "MERCK'S BULLETIN," Vol. IV., p. 52.)

GATHERED FORMULAS.

91.—Betol in Infectious Diarrhœas.

[HUCHARD.]

—CACHETS.—

Betol. 2 grammes [30 grains].

Bismuth Salicylate } of each, 5 " [75 "].
Powdered Charcoal }

For 20 cachets!—One before each meal.

92.—Iron Sulphate Against Cutaneous Atony in the Gouty.

[MONIN.]

—BATH-MIXTURE.—

Iron Sulphate. 1 kilogr. [2 lbs.].

Benzoin Tincture. 125 grammes [4 fl. oz.].

To be added to an ordinary warm bath.

93.—Iron Per-chloride in Hard Corns.

[MONIN.]

—PAINT.—

Iron Per-chloride Solution. } equal parts.
Opium Wine. }

Apply night and morning; during the day, cover the part with cotton.

94.—Betol in Dyspepsia.

[HUCHARD.]

—CACHETS.—

Betol. } of each, 4 grammes [1 dr.].
Pancreatin (*or* Pepsin). }

Powdered Nux Vomica. 40 centigr. [6 grs.].

Dispense in 20 cachets!—One daily.

(In children unable to swallow cachets, the author administers daily 3 or 4 powders, each containing 0.1 gramme [1½ grs.] of Betol, in milk, honey, or comfits.)

95.—Lactic Acid in Chronic Diarrhœa.

[HAYEM.]

—MIXTURE.—

Lactic Acid. 10 grammes [2½ fl. drs.].

Syrup. 200 " [5 fl. oz.].

Distilled Water. 800 " [27 " "].

Half a wineglassful between meals.

(The Lactic Acid is considered a germicide and a tonic.)

96.—Chronic Rhinitis.—(Treatment.)

[MONIN.]

—SNUFF.—

Menthol. }
Citric Acid. } equal parts.
Lithium Carbonate. }
Powdered Benzoin. }

Five or six pinches daily for each nostril.

97.—Tuberculous Meningitis.—(Treatment.)

[LEGROUX.]

—MIXTURE.—

Potassium Iodide. 0.3–1 gramme [5–15 grains].

White Tincture (Cod.). 125 grammes [4 fl. oz.].

Tablespoonful per dose.—At the same time, frictions of the scalp with the following pomade is recommended:

—OINTMENT.—

Iodoform. 4 grammes [1 dram].

Peru Balsam. 3 " [¾ "].

Vaseline. 30 " [1 ounce].

Furthermore, it is recommended to apply sinapisms to the lower extremities, and ice-bags to the head. If there are convulsions, administer Bromide with Iodide of Potassium,—0.5–2 grammes [7½–30 grains] of the former and 0.2–1 gramme [3–15 gr.] of the latter per dose, according to age; or 0.2–0.5 gramme [3–7½ grains] of Chloral Hydrate; or 1–10 drops of Opium Wine; or 0.25–1 gramme [3¾–15 gr.] of Quinine, in a little Valerian tea.

98.—Zinc Chloride in Diphtheria.

[DR. L. FLORAIN—*Bull. Gén. de Thér.*]

—COLLUTORIUM.—

Saturated Solution Zinc Chloride. . . . } equal parts.
Powdered Calisaya Bark. }

Honey. enough to make a paste of gelatinous consistency.

Externally!—Apply, by means of a piece of lint, every 4 or, if need be, every two hours,—swabbing the pharyngeal mucous membrane 3 or 4 times at each sitting.

99.—Creasote in Whooping-cough.

[L. DE ALMEIDA—*Sem. Méd.*]

—MIXTURE.—

Beech-tar Creasote. 0.25 gramme [4 minims].

Sulphonal. 0.2 " [3 grains].

Tolu Syrup. 150 grammes [4 fl. oz.].

Teaspoonful every two hours.—Shake before using!

EDITOR'S NOTES.

OUR INSTITUTIONS.

ST. LUKE'S HOSPITAL.

Designs for the new buildings of St. Luke's Hospital, New York, have been submitted. They are handsome and elaborate. Great care has been taken with the interior arrangement of the buildings. These are to be fireproof throughout, the basement being of stone, and the upper stories of brick, with stone trimmings.

The hospital when finished is to face One-hundred-and-thirteenth St. The centre of the administration building is to be 317 feet from the intersection of the street with Morningside Ave. The trustees at present intend to erect only the main buildings, adding others when the state of the hospital's finances make it possible and advisable. The trustees intend, however, that the hospital eventually shall be one of the finest in the world.

VERMONT STATE MEDICAL SOCIETY.

A partial list of papers to be read at the Seventy-ninth Annual Meeting at Montpelier, Oct. 13 and 14, is as follows: 1. The President's Annual Address. C. S. CAVERLY, Rutland. 2. Placenta Prævia. D. G. KEMP, Montpelier. Discussion opened by C. C. PERRY, West Rutland. 3. An Analysis of Dosimetry. C. W. STROBELL, Rutland. Discussion opened by W. H. VINCENT, Orwell. 4. Cholera Infantum. A. E. MOODY, Isle La Motte. Discussion opened by GEO. DAVENPORT, East Randolph. 5. Uric Acid and Urea, Analysis and significance of. GEO. B. NICHOLS, Barre. Discussion opened by C. W. PECK, Brandon. 6. The Influenza as observed by me in the epidemic of 1891-92. S. T. BROOKS, St. Johnsbury. Discussion opened by M. R. CRAIN, Rutland. 7. Treatment of Minor Injuries to Workmen. C. B. ROSS, West Rutland. Discussion opened by C. E. CHANDLER, Montpelier. 8. Some of the Medical Delusions of the past and present. E. R. CAMPBELL, Bellows Falls. Discussion opened by H. A. CRANDALL, Burlington. 9. Injuries to the Intestinal Canal, and their various modes of treatment. E. M. POND, Rutland. Discussion opened by J. N. JENNE, St. Albans. 10. McBurney's operation for radical cure of Hernia, with presentation of a case. WM. F. HAZELTON, Springfield. Discussion opened by H. JANES, Waterbury. 11. Neurasthenia, A. J. WILLARD, Burlington. Discussion opened by H. R. WILDER, Swanton. 12. Diphtheria.—Cause, Prevention, and Treatment. F. R. STODDARD, Shel-

burne. Discussion opened by C. F. BRANCH, Newport. 13. The Insane Diathesis. J. M. CLARKE, Burlington. Discussion opened by D. D. GROUT, Waterbury. 14. The use of the Curette in Uterine Surgery. ALBERT VANDER VEER, Albany, N. Y. Discussion opened by L. M. BINGHAM, Burlington. 15. Paper (Title to be announced). B. J. ANDREWS, Burlington. 16. Obituary of S. S. CLARK, M.D. G. DUNSMORE, St. Albans. 17. Obituary of JOSEPH DRAPER, M.D. H. D. HOLTON, Brattleboro.

ANNUAL MEETING OF THE AMERICAN ORTHOPEDIC ASSOCIATION.

The sixth annual Association-meeting will be held in Room 39, at the New York Academy of Medicine, on September 20, 21, and 22, 1892.

FIRST DAY—TUESDAY.—1. The President's Address. Dr. BENJAMIN LEE, Phila. 2. Report of a Case of Spontaneous Dislocation of the Hip Joint. Dr. B. E. MCKENZIE, Toronto. 3. Adduction following Fracture of the Neck of the Thigh Bone. Dr. H. HODGEN, St. Louis. 4. Osteitis Deformans; with a Report of Two Cases. Dr. HENRY LING TAYLOR, New York. 5. Lateral Dislocation at the Knee Joint Due to Local Disease, or Paralysis, with Especial Reference to Treatment. Dr. T. HALSTED MYERS, New York. 6. Plaster-of-Paris in Orthopedics. Dr. A. J. STEELE, St. Louis. 7. The Orthopedic Treatment of Infantile Spinal Paralysis. Dr. JOHN RIDLON, Chicago. 8. A Report of Two Year's Operative Work in the Hospital for the Ruptured and Crippled. Dr. V. P. GIBNEY, New York. 9. Lateral Curvature. Dr. E. H. BRADFORD, Boston. 10. The Classification of Hip Disease. Dr. R. W. LOVETT, Boston. 11. A Study of Some of the Problems in the Mechanical Treatment of Hip Joint Disease. Dr. NEWTON M. SHAFFER, New York. 12. Experiments Demonstrating the Etiology of the Various Deformities in Hip Joint Disease. Dr. A. M. PHELPS, New York. 13. Some Remarks on the Etiology of Club-Foot. Dr. SAMUEL KETCH, New York. Discussion to be opened by Dr. J. K. YOUNG, of Phila. 14. At What Age Shall the First Treatment of Congenital Club-Foot be Instituted? Dr. H. AUGUSTUS WILSON, Philadelphia. Discussion to be opened by Dr. C. C. FOSTER, of Cambridge.

SECOND DAY—WEDNESDAY.—The following papers will be discussed together: 15. The Non-Operative Treatment of Congenital Club-Foot. Dr. A. B. JUDSON, New York. 16. The Non-Operative

Treatment of Club-Foot in Young Infants. Dr. R. W. LOVETT, Boston. 17. Manual Replacement in the Treatment of Club-Foot. Dr. AP MORGAN VANCE, Louisville. 18. The Treatment of Club-Foot by Continuous Leverage. Dr. HENRY LING TAYLOR, New York. 19. The Place of Traction in the Treatment of Club-Foot. Dr. NEWTON M. SHAFFER, New York. 20. The Use of the Wrench in the Treatment of Club-Foot. Mr. ROBERT JONES, Liverpool. Discussion to be opened by Dr. A. M. PHELPS, of New York, and Dr. ROSWELL PARK, of Buffalo.—The following papers will be discussed together: 21. The Operative Treatment of Club-Foot. Dr. DEFOREST WILLARD, Phila. 22. Analysis of Bone Operations in Club-Foot, especially Eucleation of the Astragalus. Dr. V. P. GIBNEY, New York. 23. Treatment of Resistant Club-Foot. Dr. E. H. BRADFORD, Boston. Discussion to be opened by Dr. L. A. SAYRE and Dr. J. B. BRYANT, of New York.

THIRD DAY—THURSDAY.—24. An Easy Way to Hold the Operated-on Club-Foot in the Corrected Position while the Plaster-of-Paris Splint Sets. Dr. H. M. SHERMAN, San Francisco. 25. Means for the Prevention of Relapse in the Treatment of Club-Foot. Dr. B. E. MCKENZIE, Toronto. 26. Necessity for Mechanical Treatment after Operations for Club-Foot. Dr. W. R. TOWNSEND, New York. 27. A Case of Club-Foot with Rare Complications. Dr. A. J. STEELE, St. Louis. 28. Paper on Club-Foot; title not announced. Dr. T. HALSTED MYERS, New York. 29. Paper on Pott's Disease; title not announced. Dr. R. H. SAYRE, New York. 30. Paper; title not announced. Dr. H. L. BURRELL, Boston. 31. Paper; title not announced. Dr. J. C. SCHAPPS, Brooklyn.

ACADEMY OF MEDICINE.

At a special meeting of the Academy of Medicine, held September 12th, a resolution was passed, appointing an Advisory Committee, to recommend upon the advisability of Federal quarantine control.

NEW BOOKS.

INTERNATIONAL CLINICS; a Quarterly of Clinical Lectures in Medicine, Neurology, etc.—By Professors and Lecturers in the leading medical colleges of the U. S., Great Britain, and Canada.—Edited by Drs. KEATING, DOLAND, BRUCE, and FINLAY.—Philadelphia: J. B. Lippincott & Co., 1892.

The first volume of the second series of the above work is now in the hands of the physician. In all the requisites of a useful and practical book, it is at least equal to, if not in advance of, its predeces-

sors, and the profession, both in this country and abroad, should feel proud of the efforts made for advanced science.

Among the many interesting articles, we notice one of special interest at this time, by Dr. Da Costa, on the "Pulmonary Complications of Influenza." Dr. D. Drummond, of England, contributes an article of rare interest on "Some Clinical Types of Cirrhosis of the Liver." To those interested in mechanical therapeutics, the article by Dr. PHELPS, of the Post-Graduate School of N. Y., entitled, "Empyema and Its Treatment by Valvular Drainage," recommends itself. Dr. CANFIELD, of Baltimore, in speaking of "Occupation and Pulmonary Disease," and the "Diagnosis and Treatment of Pulmonary Consumption," hardly gives the profession anything new. The use of both cod liver oil and creasote as curative or ameliorating agents in this affection is doubtful. They no doubt cause the "patient to die rounder," but leave the mortality the same. Several excellent articles appear in the department of Neurology,—especially the one contributed by Prof. CHARCOT. Under Surgery we find a good article on "Fractures of the Femur, Humerus, and Radius," by Prof. ASHHURST, of Philadelphia, and another on several "Tubercular Joint Diseases," by Prof. J. B. ROBERTS. The second lecture on "Bladder Tumors," by Dr. WATSON, of the Harvard Medical School, and the first of two lectures by Prof. W. H. PORTER, of the Post-Graduate School of N. Y., on "Syphilis as an Ætiological Factor in Disease; its pathology, practical, and clinical importance," appear in this volume. The lectures by Prof. PORTER present the pathology of the subject in the simple manner which only a practical pathologist is capable of, and are well illustrated by original drawings of the cases reported. Under Gynæcology and Obstetrics, we find excellent articles by Prof. GOODELL, of Phila., Dr. MUNDÉ, of N. Y., and Prof. E. E. MONTGOMERY, of Phila. In fact, what might be said of one department, is equally applicable to all. In merit and interest, the articles are of the highest order. The subjects are of present interest, and each volume of the Clinics is more than a mere addition to the physician's library: it is a book of intrinsic value. J. W.

A NEW PRONOUNCING DICTIONARY OF MEDICINE. By JOHN M. KEATING, M.D., LL.D., and HENRY HAMILTON, with the collaboration of J. CHALMERS DA COSTA, M.D., and FREDERICK A. PACKARD, M.D.—Philadelphia: W. B. Saunders, 1892. 818 pp. Price: Cloth, \$5.00; Sheep, \$6.00;—both net.

This is a voluminous and exhaustive handbook of medical, surgical, and scientific terminology.

It contains a concise explanation of the various terms used in medicine and the allied sciences, with phonetic pronunciation, accentuation, etymology, etc.

The difficult task of deciding the proper pronunciation for technical and medical terms has been overcome by following the custom of the majority of English-speaking physicians, and adopting largely the anglicized pronunciation. But no hard and fast rules have been followed arbitrarily. In regard to accentuation, the authors have closely followed the general rules laid down in Worcester's Dictionary (Unabridged).

The usual list of abbreviations, explanations of signs and accents, with a Greek alphabet, precedes the body of the work; also a table of suffixes and prefixes. The body of the work is composed of the dictionary proper. It is printed in bold type, which makes it easy of reference. The definitions, as a rule, are brief yet sufficiently explanatory, and in general, unusually good.

In the appendix is found quite a fund of information,—such as a table of weights and measures, giving comparative values in the English and metric systems; a table for computing the Period of Uterogestation; thermometric equivalents; anatomical points in reference to the diameters of the foetal skull; diameters and straits of the pelvis; a scheme showing the development of the temporary and permanent sets of teeth.

It also contains a table of cardiac murmurs; a table of the distribution of the nerves; Starr's table of the localization of the functions of the segments of the spinal cord.

Another valuable addition is a complete list of the pathogenic and non-pathogenic micro-organisms, with a full list the of ptomaines, leucomaines, toxins, etc.

Following this is a complete list of medicinal preparations and their dosage, poisons, incompatibles, new remedies, etc., etc.

As a pronouncing dictionary, it is both compact and complete.

The book is not too large, the typography is good, and it ought to be found in the library of every physician.

BOOKS RECEIVED.

ESSENTIALS OF DIAGNOSIS arranged in the form of Questions and Answers,—prepared especially for students of medicine. By SOLOMON SOLIS-COHEN, M.D., and AUGUSTUS A. ESHNER, M.D.—Philadelphia: W. B. Saunders; 1892. 8vo; pp. 382; Illustrated. Price, \$1.50 net.

TEMPERAMENT, DISEASE, AND HEALTH. By FRENCH ENSOR CHADWICK, Commander U. S. N.—N. Y. and Lond.: G. P. Putnam's Sons. 8vo; 85 pp.

A BOOK ON THE PHYSICIAN HIMSELF, and things that concern his reputation and success. By D. W. CATHELL, M.D. 10th Edition (Author's Last Revision). Thoroughly revised and rewritten. Philadelphia: The F. A. Davis Co; 1892. One Royal Octavo Volume; 348 pages. Extra cloth. Price, post-paid: \$2.00 net.

A PRACTICAL MANUAL OF DISEASES OF THE SKIN. By GEORGE H. ROHE, M.D., assisted by J. WILLIAM LORD, A.B., M.D. No. 13 in the Physicians' and Students' Ready Reference Series. Philadelphia: The F. A. Davis Co. In one neat 12mo volume, 303 pages. Extra cloth, price \$1.25 net.

RECENT PAPERS.

HYOSCYAMINE AND HYOSCINE in Nervous and Mental Disorders. By E. M. Hale, M.D.—Reprint from *Hahnemannian Monthly*.

PUERPERAL PHLEGMASIA ALBA DOLENS. By J. Henry Fruitnight, A.M., M.D.—Reprint from the *New York Journal of Gynecology and Obstetrics*.

PERITYPHLITIS IN THE YOUNG. By J. Henry Fruitnight, A.M., M.D.—Reprint from *Archives of Pediatrics*.

PARACELSUS AND HIS TRIBE,—an address introductory to the lectures at the Maine Medical College. By Dan. Millikin, M.D.—Reprint from *Cincinnati Lancet-Clinic*.

OUR REFRACTION CASES. By Frances Valk, M.D.—Reprint from *Transactions of the Medical Society of the State of New York*.

DISCUSSION in the Medical Society in the State of New York on Salpingo-Oöphorectomy for Hystero-epilepsy. By Professor H. J. Boldt, M.D.—Reprint from *Trans. of the Med. Soc. of the State of N. Y.*

OBITUARY.

Dr. SAMUEL E. FETZER, at his home, Mahoney Plane, Penn.

Dr. THOMAS GODRICH, aged 54, at his home, in Van Siclen Station, Coney Island, N. Y.

Dr. FRAZER C. FULLER, at his home, No. 47 West Fiftieth st., N. Y. City, from heart failure.

Dr. WILLIAM A. SMITH, aged 72, at his home, No. 282 Broad St., Newark, N. J.

Dr. CHARLES D. SCUDDER, at Northport, L. I.

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CHOLERA METHODS.

With the threatened landing of Cholera upon our shores, a new interest has been awakened in the minds of American physicians regarding this much-dreaded disease.

Regarding its chief ætiological factor as established by Professor KOCH,—the whole problem of the disease is much more intelligently understood.

The progress of Cholera, its quarantine, its pathology, and its treatment, can then be discussed upon precise and logical data.

It is in Asiatic Cholera that bacteriological science can thus be made most perfectly to account for every step in the disease.

The introduction of a specific form of micro-organism—the comma bacillus of KOCH—is considered necessary to produce the disease. These micro-organisms must reach the lumen of the intestinal canal alive, otherwise the disease can not be developed. They first pass through the stomach; but an acid medium is death to their existence.

It is known that these germs always come from the dejections of a cholera-patient, and that they are commonly re-

introduced into the alimentary canal of a second person either in the drinking-water or the food-stuffs.

If by any chance they safely run the gauntlet of the stomach and succeed in reaching the intestinal tract alive, they come in contact with an alkaline and albuminous pabulum, in which they can grow and multiply with a rapidity that startles human comprehension.

It is said that these Cholera germs never enter the blood, lymph channels, and tissues of the body, but remain in the lumen of the intestinal canal until they have exhausted their period of existence or killed the patient.

It has been shown that they require for their rapid growth and development a large amount of water, an albuminous pabulum, heat, an alkaline medium, and a rapid removal of their products. The water is obtained by a rapid outpouring of this fluid from the blood; and, with it, comes also some albuminous pabulum. The other conditions already exist in the intestinal canal. This large outpouring of water from the blood into the alimentary canal, plus the continued irritation by the growing bacteria, naturally increases the peristalsis.

and starts a diarrhœa which at first is painless and unaccompanied by vomiting; later-on, the latter may be a pronounced symptom.

The continued flow of water into the intestinal canal constantly and often rapidly dehydrates the blood, and prevents the absorption of any nutritive pabulum; thus, at once, parching and starving the victim.

This rapid inspissation of the blood easily explains the rest of the lesions and symptoms.

The accelerated heart-beat is due to the heart's acting upon a small volume of blood, which flows with difficulty through the capillaries. The pulse is small and thready because there is not enough blood to fill the arteries. The sluggish capillary circulation for a time produces some superficial œdema, but that soon disappears with the drying-up of the body.

The dyspnœa is marked, because the blood flows with difficulty and carries but little oxygen.

The cerebrum is sluggish and irregular in action, on account of an incomplete blood-supply.

Muscular contractions are painful in the extreme, on account of the intense dryness of the muscles and a consequent binding of the fibres as they play upon one-another.

The liver and kidneys degenerate, from the rapid abstraction of the water and a defective nutritive supply. Jaundice may appear; also albumin and casts in the urine; and the patient may die a uræmic.

The surface epithelium in the intestine degenerates, dies, and desquamates—by separate villi or in patches;—the former of these two forms producing the characteristic rice-water stools.

All these conditions are logically ex-

plained upon physiological principles as being directly due to this rapid abstraction of water from the system.

Identically the same pathological conditions and symptoms are witnessed in a severe attack of *simple cholera morbus*;—death ensuing even in the absence of this specific bacterial agent and its ptomaine or toxine.

Therefore it is not absolutely necessary, as some have assumed it to be, to generate by a special bacterium a toxine, which must be absorbed into the system in order to produce the fatal results of Asiatic Cholera.

Both the simple and Asiatic types of Cholera can result fatally through this rapid abstraction of the water from the system alone. This being the case, it is an easy matter to confound the one with the other symptomatologically.

Accepting the view that *Asiatic Cholera*, however, is always due to an imported bacterium, absolute quarantine, uniformly enforced through the borders of any country, must prevent for ever the entrance of Asiatic Cholera into the same;—excepting, of course, those countries in which the disease is endemic. But then, as with phthisis, in theory it is possible to eradicate Asiatic Cholera from the face of the earth even, by enforced quarantine on the one hand and disinfection on the other.

With our present notions regarding the germ-theory of cholera, it is interesting to note how close the old and empirical preventive method of treatment with mineral acids came, to the absolute requirements of the disease.

The cholera-germs cannot live in an acid medium. By introducing the mineral acids and thereby intensifying the acidity of the gastric secretions and of the contents of the upper end of the in-

testinal canal, the chances of these living organisms' reaching the middle part of the intestinal tract alive,—where they can grow and develop,—are almost *nil*.

The indisputable clinical fact is, that this treatment, *prophylactically* employed, has prevented the spread of the cholera; and the reasons-why are now clear.

Our knowledge of the germ-theory has further taught that, if in addition to this treatment, *the dejections are destroyed* or thoroughly disinfected, and all substances that are taken into the system thoroughly sterilized, it becomes next to impossible to contract Cholera.

Having a case of the disease, and knowing that the germs do not enter the system, but kill chiefly by the rapid abstraction of water,—the old but empirical treatment with opium, camphor, and astringents, no longer begs for an explanation. The power of opium, with astringents, to arrest peristalsis and to oppose a watery secretion into the intestinal canal, is too well known to need further comment.

This sudden blocking of the watery secretion deprives the cholera micro-organisms of the much-needed water and nutritive pabulum for their growth and destructive work. It also prevents the removal of their products; and the germs *die in their own excreta*.

The abundant clinical evidence that if the primary diarrhœa can be totally arrested in its incipency and the bowels become constipated, the patient usually recovers, cannot be denied. The reasons for the good results are now clearly apparent.

The counter-effect method, of injecting large quantities of saline sterilized water into the intestinal canal, supplies the blood with its lost matter and thus helps

to sustain life; and, *with* constipation added, often acts like magic.

The *intestinal antiseptic* treatment is still open for discussion as to its true utility.

Taking the above views of Cholera,—it is not a disease to be very much dreaded by us.

So far, the quarantine of New-York port in the present access has apparently proved effectual.

This assertion may seem a little doubtful in the light of the City Board-of-Health reports; but evidently the germs of the cases reported may have been imported by other avenues.

The death of every case detected as recently reported in our city, at once throws a shadow of doubt upon the report in these cases. As none of the cases recently found in New-York city could be positively traced to an infected source, and as no report has been seen to the effect that *a pure cholera culture* was obtained from these cases and that with this pure culture *the disease was reproduced*, the scientific evidence in these cases is sadly incomplete and defective.

It certainly is to be hoped that, if Cholera should gain access to our shores, *it will not* claim for the grave one hundred per cent of all attacked, as appears to have been the result in the cases recently reported in this city.

At the time of these pages' going to press, the broad expanse of our country is actually free from this disease; but the above remarks, as well as the several therapeutic papers on the same topic in the present number of MERCK'S BULLETIN, may well serve for consideration in the—perhaps not very distant—future.

SIGNS OF THE TIMES.

Observing closely the signs of the times, the indications appear to be that the profession are now ready to support a stricter standard in what is called Medical Ethics.

Quite recently the following resolutions were adopted by the Pennsylvania State Medical Society:

"*Resolved* :—That the MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA hereby expresses its highest disapprobation of the practice of giving certificates or testimonials to secret preparations alleged to be of medical virtue, and calls the attention of the affiliated County Societies to the fact that such action, on the part of the members of said Societies, is in derogation of the dignity of the profession, and in violation of the letter and spirit of the Code of Ethics of the AMERICAN MEDICAL ASSOCIATION and of this Society.

"*Resolved* :—That this Society likewise expresses its disapprobation of the practice of inserting advertisements of secret preparations in the columns of medical journals, such action being an insult to the intelligence of the profession, and a degradation of journals indulging therein, to the level of the patent-medicine almanac. Especially to be condemned is the action of the *Journal of the American Medical Association* in admitting such advertisements.

"*Resolved* :—That copies of these Resolutions, duly attested by the permanent Secretary, be sent to all County Societies in affiliation with this Society; to the AMERICAN MEDICAL ASSOCIATION; to State Medical Societies; and to the publishers and editors of American Medical Journals."

At the June meeting of the American Medical Association, these resolutions were greeted with applause, and they were heartily indorsed by the Convention.

This action of the Pennsylvania Medical Society and of the American Medical Association is certainly a long step in the right direction.

If the action of these societies can be fully brought to the attention of the medical profession by the combined efforts of the leading medical journals of the country, a great and valuable service will be rendered to mankind.

So long as the flattering accounts of

the brilliant results obtained through the use of proprietary remedies and nostrums of unknown composition are constantly flaunted in the eyes of the profession in our journals, and allowed to remain unchallenged under the same cover with scientific communications, it is certainly hard for many to see why they are not as fully recognized and endorsed by those of high standing in the profession as are the more solid and pretentious, but often dry disquisitions contained in the so-called body of such publications.

Those dubious substances are often granted the most attractive space in the pages of the publications. Their accredited curative power is more positively stated than is ever done for any drug the composition of which is accurately known, and whose physiological actions are given upon scientifically established data.

The positive endorsements that many of these substances have secured from those of well-known standing in the profession, make them appear to be more valuable, in many instances, than the most thoroughly recognized pharmaceutical preparation.

Under such circumstances, one of two things ought to follow.

Either, the pharmaceutical preparation of recognized composition and known strength ought to be discarded as of little value, and the new compound of absolutely unknown composition so far as the practitioner is concerned, but which is said to be capable of curing every known disease, ought to replace the old and well-tried remedies, if true justice is to be done to the patient.

Or, in case this proposition is not accepted (which it cannot be), the sole possible alternative must be enforced, which is, that the prescribing of substances of which the prescriber is totally

ignorant as to their exact composition, should be condemned absolutely by all those who have medical science and the good of mankind at heart.

Only those things that are fully understood, so far as our clinical and physiological knowledge has made clear, can be considered as safe and scientific to administer.

Every medical journal should demand, in each instance, more exact and positive statements than are now obtained, regarding the nature of many substances, even within the sanction of the pharmacopœia.

When this is done, the manufacturing chemists will make still greater exertions than hitherto, to satisfy this demand for positive knowledge; but so long as the profession will accept vague and verbose statements as declarations of scientific facts, there is but little motive to force deeper investigation.

When this demand for definite information becomes a common practice, our knowledge will become more exact, and therapeutics more certain. There will be less inclination to use those much-vaunted compounds of unknown composition that are so often guaranteed to "cure the incurable."

At the same time every medical journal should condemn, with equal vigor, both in its reading-columns and in its advertising-space, everything which tends to make medicine more blind and uncertain. Only those things should be admitted that intelligibly explain themselves.

When this practice becomes somewhat of a universal rule, empiricism will of necessity give place to a true and exact state in medical science. Quackery will steadily and irresistibly be forced into the background. But, so long as there is a semblance of recognition maintained

between scientific medicine and quackery, the complete destruction of the latter cannot be accomplished.

If once the now-apparent bond of union between them is *completely divided*, the two, by their inherent nature, will repel each other. They will progressively diverge until recognition between the two is no longer among the possibilities.

MERCK'S BULLETIN has taken *the initial step* among the journals of this country, in declaring in indisputable terms that the science of medicine, and quackery or anything resembling the latter, shall not quarter together under its cover.

If the medical profession are ready and willing—as they ought to be—to stand by the resolutions of the medical societies quoted and by the declarations here announced, a much more scientific condition in the practice of medicine can easily be instituted.

Only one thing more remains to secure complete success in this consummate undertaking, which is that all *our contemporaries* come forward and fully support the same principles and high standard.

With the medical profession and the medical journals united in one solid phalanx against proprietary medicines and nostrums of unknown composition,—the defeat of quackery must be the final and speedy result.

It is hard to comprehend how any medical man who respects the oath which he took with the granting of his diploma, can dare to give, to his patients, compounds or nostrums the composition of which is absolutely unknown to him. What does he give them for, and what results can he possibly expect by giving a something, he knows not what? How can he tell whether the result has been good or bad? How can he tell that he

is not damaging irreparably the constitution of his patient?

Morally he has no right to take such risks, even if he can be protected by civil laws.

The editor who sanctions the presentation of such matters in the journal through which he acts as the guide of medical thought, should, for his own sake, stop and ask himself whether his blindness towards quackery either in the editorial, reading-, or advertising-columns, will much longer be tolerated by the medical profession!

ATROPINE THERAPY IN SHOCK.

For a long time Atropine has been recognized as a valuable remedy in the treatment of the acute stage of shock.

To intelligently explain the therapeutic action of Atropine in this class of cases necessitates a clear conception of the physiological disturbance and the pathological conditions of the animal economy, to which the term "shock" is applied.

The ætiological factors and the pathological state of the system must first be considered; otherwise it is impossible to know what is to be treated.

First of all it might be justly asked: What is shock? So far as the symptoms and clinical picture, of the condition commonly called shock, are concerned, the definition of MCCORMICK can not be improved-upon.

He defines shock as a condition of sudden depression of the whole of the functions of the body, due to powerful impressions upon the system by physical injury or mental emotion. Its most obvious manifestations are signs of lowered activity of the cardiac, respiratory and sensorial functions; and reduction of surface temperature.

While this definition furnishes a very concise picture of the clinical condition known under the title "shock," it offers little or no explanation for the *modus operandi* by which this state is produced. Neither does it point out the pathological processes which are to be combated by our therapeutic agents.

Without this information regarding the development of the condition, and the resulting changes, treatment is pure empiricism; that is, without any scientific foundation.

Experimental research and clinical observation have abundantly proved that intense mental emotions and severe traumatic injuries produce a high degree of peripheral nerve-irritation. This abnormally intense disturbance of the nervous system is reflected back to the cerebro-spinal axis and causes the nerve-centers therein contained to become rapidly overworked in their efforts to receive, transfer and reflect outward again in a normal manner these abnormal impulses. At the same time that the nervous system is trying to overcome and regulate this undue irritation, all the organs throughout the body become involved, and their actions are incompletely and imperfectly performed. This, together with the superexcitation of the nervous system, causes a general disturbance in the workings of the whole physiological mechanism.

As a natural sequence nutrition throughout the body is imperfectly effected; and the nerve-centers, as a result of increased work upon a defective nutrition, become almost completely exhausted, and a condition of semi-paresis of the whole system is induced.

This suddenly developed general paralytic condition means a speedy lowering in the whole functional activity of the body, as depicted in MCCORMICK's defi-

dition. It also explains clearly the clinical picture given by him for shock.

It does not, however, elucidate *the pathology* of shock; but, by carefully interpreting these reflex nervous phenomena, a complete explanation for the development of the pathological conditions described under the name of shock is made quite easy,—as follows:

The increased irritation of the nervous mechanism of the body, as above noted, affects particularly the primary vasomotor and cardio-innervating centers, and causes primarily a rapid and weak action of the heart. At the same time it excites an undue contraction of the walls of the arterioles and causes the blood to be rapidly driven over into the veins, which thereupon progressively expand,—thus preventing the blood from returning to the arterial system as rapidly as it should.

These changes in the condition of the vascular system rapidly decrease the total volume of blood in the arterial vessels and cause an unusually large volume to accumulate in the veins.

This abnormal condition of the circulatory apparatus, together with the rapid and imperfectly performed action of the heart, causes the blood to flow in smaller quantities and with greater speed through the arterial capillaries, at which point all nutritive interchange is effected.

Consequently, a rapidly developing state of malnutrition is produced, which, together with the accumulation of an abnormally large volume of blood in the central veins and the marked volumetric decrease of blood in the arterial system, constitutes the abnormal condition of the physiological economy which is now regarded as the true pathology of shock.

As it is an established physiological law, that good nutrition depends upon a well-filled arterial system, a moderately

contracted or normal tone of the arterioles, and a slow, even flow of the blood into and through the arterial capillaries,—anything which disturbs this condition will rapidly produce extensive pathological changes of a secondary nature, or cause the death of the individual unless speedily overcome.

Another important fact to remember in the study of these vascular disturbances which constitute the condition called shock, is, that the volumetric capacity of the venous system *when expanded* has been proven to be three times greater than the total bulk of blood contained in the whole body under the most favorable circumstances.

Therefore, by the rapid and enfeebled action of the heart, with the unduly contracted condition of the arterial system, together with the general relaxation of the muscular system and the expanded state of the veins, it is easy to understand how the described disturbance in the even and normal balance between the arterial and venous system is produced.

It is also easy to see how this accumulated balance of blood in the venous side tends *to remain* there at the expense of the arterial capacity.

By this state, the nutritive activity is almost abolished, and the pathological condition known as shock is fully established and maintained, unless relieved by extraneous agencies.

The above-described phenomena and resulting changes are fully corroborated by the clinical picture of shock commonly seen, and also by the pathological changes usually found at the necropsy.

Clinically, it is apparent at once that the blood has left the arterial system and the surface of the body, and has accumulated in the internal and large venous trunks. The pulse is rapid and feeble; the surface is blanched, cold, and clammy;

the breathing rapid and shallow ; and the solid ingredients in the excreta are diminished.

At the necropsy, a general anæmic condition of the whole body, with a large accumulation of blood in the venous trunks of the visceral organs and in the great veins, is always found as the chief lesion. This condition is generally seen most marked in the abdominal cavity and in the post-peritoneal region, which tends during life to draw the blood away from the cerebro-spinal centers.

When death occurs early, in shock, the parenchymatous changes in the protoplasmic elements are comparatively small, and can only be appreciated by a thorough microscopic examination. If the condition of shock is prolonged, the retrograde changes are much more apparent, and can often be recognized by the unaided eye of a good pathologist.

With this view of the ætiology and the pathological developments in shock clearly understood,—the physiological action and true utility of Atropine in the treatment of shock can be satisfactorily explained.

Atropine is a nitrogenous vegetable compound ($C_{17} H_{23} NO_3$), which is capable of being transmuted within the system,—ultimately forming urea, carbon di-oxide, and water.

While the Atropine is passing through this transmutation process, it acts either directly or indirectly upon the cerebro-spinal centers, chiefly on the medullary and spinal.

Atropine, by its power to stimulate both the primary and secondary vasomotor centers and at the same time excite the cardio-innervating center, tends to increase the power and efficiency of the heart's action. By its power to stimulate the innervating impulses distributed to the muscular coats of the

arterioles, their spasmodic contraction is overcome, and an even and more uniform tone is established.

By this combined action upon the heart and muscular walls of the arteries, the volumetric capacity of the arterial system is expanded, and more completely filled with blood, drawn from the over-distended veins.

At the same time innervating impulses are distributed to the venous capillaries and the veins, and their surrounding structures;—all of which tends to contract the volumetric capacity of the venous system; while the heart now gradually and steadily pumps the excess of blood out of the venous area and discharges it into the arterial space. This change in position, of the bulk of the blood, is slowly effected until the normal equilibrium between the two great branches of the vascular system is again fully established.

As the volume of blood grows larger in the arterial system, the arterial capillaries at the point where the nutritive change is effected become better filled, and the natural nutritive processes begin again to act. When this stage is reached, the reaction from the symptoms of the shock become more apparent and complete, until recovery is fully established.

General nutrition next feels the benefit, particularly noticeable in the recently exhausted and semi-paralyzed nervous mechanism ; which then no longer needs the aid of this powerful stimulant, Atropine.

All the impulses evolved by the central nervous system become more even and uniform ; and the artificial stimulant can now be withdrawn,—awaiting that perfectly normal actions will be developed throughout the body without the further aid of any adventitious substance ;—whereas a continued use of the Atro-

pine would produce over-action and would cause irregular impulses to be evolved.

The great power of Atropine is contained in its ability to stimulate a depressed and imperfectly acting nervous system, increase the cardiac and respiratory actions, and augment the intake of oxygen. At the same time it aids in contracting the expanded venous system,

and expands the arterial, until the blood is again normally balanced as regards these two systems;—thus establishing a normal nutritive action, through which enough inherent nerve force is normally developed and maintained, to regulate the physiological phenomena of the system even in the presence of the originally causative surgical or other abnormal condition.

MEDICAL REPORTS

TO "MERCK'S BULLETIN."

A REPORT OF MY LAPAROTOMIES MADE BEFORE THE CLASS IN THE NEW-YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL,—SHOWING MY MISTAKES AND FAILURES.

By A. PALMER DUDLEY, M.D.,

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To write of one's successes in laparotomy work is an easy and pleasant task; but to place upon record the history of a series of cases performed under circumstances not the best, and chronicle one's mistakes and failures, is a task that to me is not so pleasant. However, it is my intention in reporting this series of thirty-one cases, performed before the class in the New-York Post-Graduate Medical School and Hospital, to point out what I consider to have been mistakes, and show the causes of failure in those cases which resulted fatally.

At the same time I wish to add to the list of cases reported by me two years ago (*Trans. N. Y. State Med. Ass.*, 1890), in which laparotomy was made for the relief of peri-uterine adhesions, and the uterus fastened forward (to which the term *desmopycnosis* was given); where removal of the ovary was not justifiable, but in which sufficient disease existed in the ovary to call for surgical treatment of the latter for relief.

It is a well-known fact that in the past the successes obtained have been so satisfactory that the removal of the ovary has been looked upon as a panacea for all uterine trouble; but the time has arrived when advanced workers in this field of surgery have satisfied their thirst for removal of all ovaries that were not the pink of perfection, and are now trying to advance still further by saving to the woman as much of those organs as possible by removing that portion of the ovary which is diseased and allowing the healthy to remain.

I know I shall meet with adverse criticism for advocating such ovarian surgery; nevertheless, it was my privilege to show, as far back as December, 1889, that the ovary could be treated surgically and allowed to remain,—the result being not only beneficial but far beyond expectation. Since that time I have repeatedly incised the ovary, removed what I considered the most prominently diseased portion, and stitched together carefully what remained of it that appeared to be healthy, using fine silk or catgut suture. In none of the cases where I have treated the ovary in this manner have I had occasion to regret it; and in no case has it failed to heal without trouble and give marked relief to the patient, although in several cases I have removed more than half the ovary.

I do not purpose giving a detailed history of those thirty-one cases, but simply say that in no case was the operation a simple laparotomy; complications of some kind or another (as will be seen in the table) attended each operation. Neither were the cases picked, but taken in the order in which application was made.

At the beginning of this paper, I stated that the operations were made under circumstances not of the best; for, unfortunately at present,—although we hope the time will be short,—the Post-Graduate Medical School can boast of only one operating-room, where all the surgery that comes within the doors of our institution must necessarily be performed; and the variety of work done there each day makes it impossible for us to count upon an operating-room offering the best advantages for the performance of strictly antiseptic surgery. It is also claimed (and with good reason too) that in operating before a large class in cramped quarters, where ventilation is not perfect, an operator takes some chances and possibly exposes the patient to more or less risk of infection in that way. Nevertheless, in only one of the thirty-one cases did peritonitis follow the laparotomy; and I will now record what I consider to be one of my mistakes, which I think cost the patient her life.

—CASE XXI—

was that of Mrs. D., Italian; aged 22; she was the mother of two children. The third pregnancy had miscarried and was followed by inflammation in the right side that resulted in the formation of pus. When I first saw her in consultation with her family physician, the right tube was enlarged to nearly the size of a foetal head. She had been under the care of a physician for some time, had been repeatedly blistered and also received the different forms of anti-phlogistic treatment *per vaginam* in general use. She was placed under my care for operation in the Post-Graduate Hospital, where abdominal section proved my diagnosis of right

pyosalpinx to be correct; the ovary was involved and filled with pus. The mass when lifted through the section had a dirty brownish-yellow color, as though the contents was a mixture of pus and decomposed blood.

The adhesions about the growth were quite extensive and involved the intestines to some extent; these were easily broken up, and after removing the tube and ovary and thoroughly irrigating the pelvic cavity preparatory to closing the wound, I hesitated as to whether or not I should drain the pelvis through the abdominal incision; for the glass drainage tube is something I dislike exceedingly,—using it only when all other means of drainage are inapplicable, and preferring to make drainage by a counter-opening in the cul-de-sac and by the use of iodoform gauze drawn into the vagina. My hesitation to adopt either method of drainage, in this case, was due to the fact that I had previously operated upon many cases, apparently much worse than this, where, after flushing the pelvic cavity and drying it, I had closed the wound without drainage and the patient made an uninterrupted recovery. The appearance of the contents of the sac in this case was what caused me to hesitate, for it seemed of a septic nature.

However, I finally decided to close the cavity without drainage, remarking to those present that the only danger I anticipated the patient would be liable to, was peritonitis; but I felt myself equal to the detection of the approach of the latter in time to make counter-opening through the cul-de-sac and introduce the gauze if necessary. But I was giving myself much more credit than I deserved; I was for the time being in a fool's paradise, because having previously been able to manage the after-treatment of severe cases to a successful termination, I felt that I could continue to do so in this case. It was my mistake; I did not count upon the behavior of my patient after the

operation; and here let me say that I hope it will never be my misfortune to make a laparotomy upon another Italian woman, for they do not bear surgery well.

From the time this patient was put to bed until she died, it was utterly impossible to manage her or to get her to acknowledge how she suffered or where she suffered; and ere I knew it a septic peritonitis was well under way. On the fourth day after the operation I made the counter-opening through the cul-de-sac, doing it easily and quickly without anæsthesia, using only cocaine; and a small quantity of septic bloody serum escaped; the pelvic cavity was thoroughly washed out by irrigation through the vagina and iodoform gauze drainage introduced. It was done without suffering to the patient, but it did not stay the progress of the peritonitis, and the patient died on the eighth day, after knocking down the nurse and giving her husband a black eye.

Possibly the result of this operation would have been the same with any form of drainage, in such a patient as this; but I have always entertained the idea that if I had made the counter-opening at the time of operation and drained the pelvic cavity with iodoform gauze, my patient might have recovered; and in all my laparotomy work since that time, where drainage was at all indicated, I have never hesitated to make the counter-opening through the vagina, and the result has proved the wisdom of such a procedure.

—CASE XXV—

presents some points of interest, and although it was reported at the February meeting of the CLINICAL SOCIETY of the Post-Graduate Medical School(*), I desire to call attention to it again for the purpose of explaining what I consider to have been a mistake. It was an exceedingly unusual case, to which I was called in consultation only the day before the operation was made, and I had not the privilege of previously studying the progress

of the disease. The belly was so greatly distended by ascitic fluid that it was almost impossible to make a correct diagnosis; I was misled respecting the condition of the liver even after tapping, and drawing away a gallon of serum; no history of jaundice or of pain over the seat of the liver could be obtained from the parents; and the ascitic distention of the abdomen had lifted the ribs and pressed the liver up to such an extent that the outlines of the latter could not be ascertained by palpation or percussion: otherwise my method of operation would have been materially different from that which was adopted.

I am most at home in making laparotomy through the median line; but in this case, having the organ to be examined and removed (if necessary) on the left side of the body, I was induced to make lateral laparotomy, and, as a result, could not make visual inspection of the liver, owing to its great distance from the incision and also because the moment the peritoneum was opened the incision was filled by the enormous spleen. The exploratory incision confirmed the diagnosis so far as the spleen was concerned, but it did not throw any light upon the actual condition of the liver, which post-mortem examination subsequently proved to be in an advanced stage of cirrhosis,—a condition not to be expected in one so young without a history of alcoholism or syphilis.

I deem it only right to say that I believe the exploratory incision should have been made in the median line and the condition of all the abdominal organs ascertained before attempting to remove the spleen. After I had made the lateral incision,—had I known that the liver was so badly diseased, I should most certainly have closed the abdomen without removing the enlarged spleen.

—CASE XXX—

resulted in death, although I cannot debit myself with having made any grave mistake in the management of it. It was of such

(*) *The Post-Graduate*, April, 1892, p. 158.

interest to me, and the intra-abdominal condition differed so materially from what I anticipated I should find, that I wish to report it at length.

This patient, a married woman, 41 years of age, who had not borne children. presented herself at my clinic in July last. She was a very large woman, weighing something over two hundred pounds, and she gave the following history:—She had been twice married but had not been impregnated by either husband; at each menstrual period she had suffered intense pain and lost quantities of blood; she had suffered from repeated attacks of what she called inflammation of the bowels, and had received treatment at the hands of several physicians, the last being a female physician who subjected her to a course of treatment by electricity, Apostoli's method. This treatment had been followed by a severe attack of inflammation of the bowels, and her pain was so intense that she could bear it no longer.

Examination revealed a large mural fibroid, which occupied the posterior wall of the uterus principally; at either side of the fibroid there appeared to be what seemed to me enlarged tubes and ovaries; the vagina was long and narrow; the cervix long and conical and crowded up high behind the pubic bone; the external os was very small. I explained the pathological condition to her and advised operative relief. She was anxious to have it if any hope could be given her that she would be cured. I told her that I would try to remove the growth through the uterine canal if possible, and if not, that I would make a laparotomy and remove the tubes and ovaries.

She was troubled a great deal with constipation, and, although the bowels had been moved quite freely a few days previous, I ordered a thorough catharsis the day before the operation was to be made. The cathartic was administered, but I was surprised to learn, after she had been placed under the anæsthetic, that it had not acted;

at that time I did not consider it a vital necessity, but the result proved it to have been. The patient took the anæsthetic well, and I first attempted to remove the growth through the uterine canal; this I found to be absolutely impossible, owing to the firmly fixed condition of the uterus and the position of the cervix high behind the pubic bone; so I abandoned the idea and made laparotomy.

Then I had revealed to me the actual condition within the pelvis; in the place of a simple fibroid tumor of the uterus, with enlarged tubes and ovaries as I supposed, I found the entire contents of the lower portion of the abdomen matted *en masse*, with inflammatory adhesions; and it was with the greatest difficulty that I could even touch the top of the uterus; instead of enlarged tubes and ovaries to deal with, the latter were small and shriveled organs and the tubes were spread out over what proved to be immensely dilated and varicose veins in the broad ligaments (what I have previously termed "varicocele in the female"). The left tube was simply one immense blood-sinus, so that the first effort I made to break up adhesions about it, caused it to rupture, and a stream of blood, as large as my thumb, poured into the pelvis.

I had anticipated some such accident, and quickly clamped the bleeding tube with forceps, otherwise my patient would have bled to death as quickly as from the jugular vein. The varicocele was so large that I was obliged to quilt the entire broad ligament with cobbler's stitch; this consumed considerable time, but, as the patient bore the work well, I did not hesitate to do it. The right broad ligament was in a similar condition, though not quite so large; but the intestines were so thoroughly glued to it, both anteriorly and posteriorly, that it was utterly impossible for me to remove the varicocele without taking out a portion of the intestine. I abandoned the idea of removal and ligated the broad ligament at

both extremities and left it. The patient did not lose much blood, although there was some oozing from the posterior surface of the uterus. I packed the pelvis with iodoform gauze and allowed it to have exit through the lower end of the incision, closed the wound and put the patient to bed in good condition. She rallied very quickly from the operation, and, as is my custom, I endeavored to move the bowels as soon as possible; all efforts to accomplish this failed, and the patient died on the second day from obstruction of the bowels, as proved by post-mortem; no hæmorrhage had taken place in the pelvis, neither had peritonitis made its appearance.

I report this case at length, if only to illustrate how many conditions may exist in a woman's pelvis that may be mistaken one for another; also, to show how easy it is to be deceived as to the true condition; for even though I had succeeded in removing the growth through the uterine canal, I would not have relieved my patient of her suffering. It may be asked why I did not make hysterectomy; I certainly would have preferred to do that operation, but it was simply out of the question, owing to the intestinal complications.

Thus far, in this report, I have dwelt upon the cases that terminated fatally; and, in so far as I am able, have endeavored to state a sufficient cause for the result in each;—holding myself responsible for methods in operating which experience has since taught me I could have improved-upon. Nevertheless, Dame Nature was very generous to me in several of the cases that were cured; and there are points of interest in some of them to which I would like to call attention.

—CASE IX,—

Mrs. L., who is here reported as having had a second laparotomy for the cure of an abdominal sinus resulting from a previous hysterorrhaphy, demonstrates most positively what I have always claimed,—that Nature never intended the uterus to be bound to the

abdominal wall; while, at the same time, it illustrates the dangers of introducing any element within the abdominal cavity which will act as an irritant. The first laparotomy was made by myself eight months previously; both tubes and ovaries being removed and the uterus fastened to the abdominal wall by passing the same ligature that ligated the pedicle, through the peritoneum and fascia on either side of the median line.

This patient made a good recovery; but, some three weeks after the operation, a sinus made itself manifest at the lower angle of the incision. All efforts to heal this proved fruitless; and the second laparotomy was resorted-to, eight months later, as reported, for the purpose of removing if possible the source of irritation which kept the sinus open,—which was considered to be suppurating ligatures. Upon reopening the peritoneal cavity, which it was very difficult to do, owing to universal adhesions, the utter failure of the previous hysterorrhaphy was made manifest; the uterus had separated from its attachments to the abdominal wall and lay at least two and a half inches away from it,—although held in an upright position by adhesions to the intestines, which, in place of the uterus, had become attached to the abdominal wall above it.

As reported, the condition was complicated by three intestinal perforations,—the sinus, two and a half inches long, leading down to the largest; and, lying in the lower portion of the sinus at one side, were the two silk ligatures which had formerly fastened the uterus to the abdominal wall and which I had previously made vain attempts to secure with long forceps.

The experience, although a severe one for the patient, was a beneficial one for me and led to the operation of desmo-pycnosis, which I have since made nine times successfully in cases where I found it unnecessary to remove the ovaries,—using catgut in every case. This experience has demonstrated to

my satisfaction that it is quite unnecessary to use other than catgut in making the operation of hysterorrhaphy; and, if the catgut is properly prepared, it is devoid of the danger of causing intestinal and abdominal sinuses, such as occurred in this case.

—CASE XX.—

The patient on her first visit volunteered the information that she had undergone a laparotomy and the removal of the left tube and ovary for pyosalpinx, some eighteen months previously, in our neighboring Quaker City; and, as she carried the median laparotomy scar upon her person, I may be excused for having made a diagnosis of pyosalpinx of the remaining right tube, with thickening upon the left side of the uterus, which I considered to have resulted from the previous operation.

When the second laparotomy was made, it revealed the fact that the woman still carried within her pelvis a pair of tubes and ovaries. I may probably be pardoned, under these circumstances, for having given expression to the thought that Dame Nature might have taken offence at the celebrated Philadelphia operator, and restored the lost appendage to the poor woman, although in a diseased condition. I should not make use of the above remark, had not the patient positively assured me that she was so informed by the surgeon and saw the specimen after removal.

A glance at the table of cases will show that, in many of them, *triple* operations were really performed; I mean to say that—as a simple laparotomy and removal of appendages would not have cured the case—complications such as curetting for fungous endometritis, restoration of lacerated perineum and interior wall, and even the closure of recto-vaginal fistula (which a few years ago would have required secondary operative work necessitating a longer stay in the hospital, or a return and re-admittance,) were dealt-with at the same time that the laparotomy was performed. It is a practice that

I would not recommend except at the hands of an expert surgeon who is constantly operating in this field of surgery; but among such people as resort to clinics and hospitals for treatment, it becomes necessary to do triple operations if we expect to cure them; therefore, when they cannot spare the time or money for a second term in the hospital, if they bear the anæsthetic well I endeavor to do all that is required under the one sitting; and, so far, the results of my work have been more than satisfactory,—as a glance at the summary of diseases and complications will show. And, as my object in reporting these cases was, to record what I consider my mistakes and failures,—now, having done so, I will leave the short summary of my successes to speak for itself.

Table of Cases.

I.—Jan. 31, 1889; Mrs. B., Am., married; retroversion, double pyosalpinx and ovaritis, extensive adhesion. —Laparotomy; both tubes and ovaries removed; uterus freed, and fastened forward by including round ligament in the ligature and removing two inches of it. *Cured.*

II.—Feb. 28, 1889; Mrs. McC., Am., aged 24, married, one child; hæmatoma of right ovary, double pyosalpinx, retroversion and adhesions.—Laparotomy; both tubes and ovaries removed; uterus fastened forward by shortening round ligaments. *Cured.*

III.—March 18, 1889; Mrs. S., married, one child; double pyosalpinx and pelvic abscess; intestinal perforation in upper rectum.—Laparotomy; both tubes and ovaries removed; pelvic abscess scraped out; opening in intestine covered over by stitching it to the posterior surface of uterus and cul-de-sac. *Cured.*

IV.—April 15, 1889; Mrs. M., widow; right hydrosalpinx, left pyosalpinx, extensive adhesions.—Laparotomy; both tubes and ovaries removed; uterus drawn forward by shortening round ligaments. *Cured.*

V.—May 13, 1889; Mrs. C., Am., married, no children; double pyosalpinx

and suppurating ovaries. — Laparotomy; both tubes and ovaries removed with much difficulty; uterus fastened to anterior abdominal wall with silk.

Cured.

VI.—Sept. 26, 1889; Mrs. L., Ger., aged 22, married, two children; double pyosalpinx, retroversion, adhesions, diseased ovaries.—Laparotomy; both tubes and ovaries removed; uterus fastened forward by shortening round ligaments.

Cured.

VII.—Oct. 1889; Mrs. G., Ger., aged 32, married, no children; double pyosalpinx, suppurating left ovary, extensive adhesions.—Laparotomy; both tubes and ovaries removed, adhesions broken up; patient nearly died of shock; had some pelvic peritonitis; previously had pelvic abscess discharging into rectum.

Cured.

VIII.—Oct. 22, 1889; Mrs. W., married, two children; double salpingitis and ovariitis, retroversion, adhesions.—Laparotomy; both tubes and ovaries removed; uterus fastened to anterior abdominal wall with catgut.

Cured.

IX.—Nov. 14, 1889; Mrs. L., married, no children; abdominal sinus from previous laparotomy for removal of appendages and hysterorrhaphy.—Second laparotomy; sinus behind uterus $2\frac{1}{2}$ inches long; hysterorrhaphy had given way; sigmoid colon bound to abdominal wall; three perforations in intestines, one in sigmoid colon, two in small intestine; two silk ligatures found in sinus; perforations closed with fine silk.

Cured.

X.—Dec. 6, 1889; Mrs. S., Ger., aged 25, married, two children; retroversion with adhesions, double cystic ovaries.—Laparotomy, desmo-pycnosis (anterior surface of uterus denuded and round ligaments stitched to it, see *Trans. N. Y. State Med. Ass.*, 1891); adhesions broken up, cysts in ovaries punctured, neither tube nor ovary removed;

patient became pregnant three months later. (*)

Cured.

XI.—Sept. 20, 1890; Mrs. S., aged 35, married, two children, four miscarriages; retroflexion and adhesions.—Laparotomy; adhesions broken up, nothing removed; uterus fastened forward by desmo-pycnosis operation.

Cured.

XII.—Oct. 28, 1890; Mrs. E., Ger., aged 27, married, two children; double pyosalpinx and left hæmatoma, diffuse intestinal adhesions.—Laparotomy; both tubes and ovaries removed.

Cured.

XIII.—Nov. 15, 1890; Mrs. G., Am., aged 23, married, no children; dermoid cyst on right side, salpingitis and small cyst on left ovary, adhesions all about.—Laparotomy; adhesions broken up, dermoid cyst removed, left ovary bisected and allowed to remain.

Cured.

XIV.—Nov. 18, 1890; Mrs. B., Ger., aged 21, married, three children; double pyosalpinx and suppurating ovaries, adhesions.—Laparotomy; both tubes and ovaries removed.

Cured.

XV.—Nov. 25, 1890; Mrs. McG., Am., aged 30, married, one child; double ovariitis, left hæmatoma, extensive intestinal adhesions.—Laparotomy; both tubes and ovaries removed.

Cured.

XVI.—Jan. 25, 1891; Mrs. T., Ger., married, two children; complete retroversion, adhesions, cystic ovaries.—Laparotomy; desmo-pycnosis, adhesions broken up, cysts punctured.

Cured.

XVII.—March 10, 1891; Mrs. P., Am., married, one miscarriage; complete retroversion, cystic left ovary.—Laparotomy; desmo-pycnosis, ovaries bisected.

Cured.

XVIII.—March 10, 1891; Mrs. T., Am., married, two children; left pyosalpinx and

(*) Since writing this paper I have learned that another case identically the same, so far as the operation was concerned, as was case X, and previously reported in the *Transactions of the New-York State Medical Association*, 1891, is at the present time six months pregnant. This makes two out of nine cases of desmo-pycnosis that have been known to become pregnant after the operation.

suppurating ovary, right ovary cystic, fimbriated extremity of right tube closed.—Laparotomy; left tube and ovary removed, right ovary bisected, sutured with silk and allowed to remain; phimosis operation upon fimbriated extremity of right tube. *Cured.*

XIX.—March 25, 1891; Mrs. L., Am., married, several children; suppurating tubes and ovaries, extensive adhesions.—Laparotomy; both tubes and ovaries removed, round ligaments shortened, adhesions broken up. *Cured.*

XX.—April 1, 1891; Mrs. H., Am., married, no children; first laparotomy made by Philadelphia operator for removal of left tube and ovary.—Second laparotomy revealed fact that nothing had previously been removed; double pyosalpinx, suppurating ovaries, adhesions; both tubes and ovaries removed. *Cured.*

XXI.—May 27, 1891; Mrs. D., Italian, married, two children, one miscarriage; right tube and ovary size of small foetal head, filled with pus.—Laparotomy; tube and ovary removed, no drainage used; patient died of septic peritonitis on eighth day. *Died.*

XXII.—Dec. 22, 1891; Miss W., Am., aged 25, single; double pyosalpinx and ovaritis, extensive adhesions, both tubes and ovaries filled with pus, intestines matted together.—Laparotomy; tubes and ovaries removed, abdomen drained with iodoform gauze through cul-de-sac. *Cured.*

XXIII.—Jan. 8, 1892; Mrs. B., Ger., married, three children, two miscarriages; right ovary cystic, holding fourteen ounces of water; left hæmatoma; uterus contained placenta and was procidented.—Uterus curetted and packed with gauze; laparotomy; both tubes and ovaries removed; uterus fastened forward to abdominal wall with catgut; pessary introduced. *Cured.*

XXIV.—Jan. 26, 1892; Mrs. P., Italian, married, no children; uterus completely retroverted; double pyosalpinx and suppurating ovaries, extensive adhesions.—Uterus

curetted; laparotomy, both tubes and ovaries removed, round ligaments shortened.

Cured.

XXV.—Jan. 30, 1892; Alex. Feist, Ger., aged 17, newsboy; hypertrophied spleen; tapped day before operation, one gallon of serum drawn.—Left lateral laparotomy; spleen removed, weight 4 lbs. Patient died of shock on second day. *Died.*

XXVI.—Feb. 2, 1892; Mrs. F., Am., aged 22, married, no children; left ovarian cyst; right ovary cystic.—Laparotomy; cyst, containing 4 ounces of serum, removed; cysts of right ovary punctured and allowed to remain. *Cured.*

XXVII.—Feb. 24, 1892; Mrs. L., Am., aged 32, married, four children, four miscarriages, followed by complete amenorrhœa and epileptic convulsions; pelvic adhesions, atrophied ovaries and retroversion. Laparotomy; desmo-pycnosis, adhesions broken up. No convulsions since operation. *Cured.*

XXVIII.—March 29, 1892; Margaret H., Am., aged 25, single, one child; retroversion, adhesions, cystic ovaries, lacerated cervix and perineum, recto-vaginal fistula.—Uterus curetted; laparotomy, cystic ovaries punctured; desmo-pycnosis; recto-vaginal fistula closed and perineum repaired. *Cured.*

XXIX.—May 17, 1892, Mrs. K., Eng., married, four children; small uterine fibroid in fundus; large double varicocele, uterine fungositis.—Uterus curetted and packed; laparotomy, both tubes and ovaries removed, together with varix, by Dudley's method (quilting broad ligament with cobbler's stitch). Perineorrhaphy. *Cured.*

XXX.—July 11, 1892; Mrs. L., Am., aged 29, married, no children; retroversion with adhesions, double cystic ovaries.—Laparotomy; adhesions broken up, both ovaries bisected and sewed up; desmo-pycnosis. *Cured.*

XXXI.—July 12, 1892; Mrs. F., aged 41, married, no children; large mural fibroid,

immense varicocele.—Laparotomy; left tube and ovary with varix removed; right varix tied off, tube and ovary not removed; adhesions broken up; patient died second day from intestinal obstruction. *Died.*

Summary of Diseases and Complications.

OVARITIS, ten were suppurating, six cystic, five simple.....	21
DOUBLE PYOSALPINX, one case complicated by pelvic abscess.....	15
EXTENSIVE ADHESIONS, three were without adhesions.....	28
DERMOID CYST, occupying right ovary, left enlarged.....	1
UTERINE FIBROID, one large, one small..	2
INTESTINAL PERFORATION, one in rectum, one in small intestine.....	2
PYOSALPINX, simple, two on right side, one on left.....	3
HYDROSALPINX, on right side.....	1
DOUBLE SALPINGITIS.....	2
HYPERTROPHIED SPLEEN, weight 4 lbs....	1
UTERUS TO BE CURETTED.....	4
RETROVERSION, one simple, five complicated by double pyosalpinx, five by salpingitis and ovaritis.....	11
HÆMATOMA, three on right side, one on left.....	4
UTERUS FASTENED FORWARD by including round ligament in pedicle.....	6
HYSTERORRHAPHY, one with silk, two with catgut.....	3
BOTH TUBES AND OVARIES REMOVED, all but two for double pyosalpinx.....	17
ONE TUBE AND OVARY REMOVED, three left side, two right side; two for pyosalpinx, two ovarian cyst, one varix.....	5
DESMO-PYCNOTIS, cystic ovaries in six, cysts tapped with spear-pointed needle and drained.....	7
ABDOMINAL SINUS, three inches deep, second laparotomy 8 months after first, ligature found.....	1

TUBERCULAR LYMPHANGITIS.*

By SAMUEL LLOYD, B.S., M.D.,

Surgeon to the RANDALL'S-ISLAND HOSPITALS, New York.

It is now, I think, generally recognized that the majority of cases of Adenitis in children and young adults are of tubercular origin. During the past few years I have been called-upon to treat—in dispensary, hospital and private practice—between two and three hundred cases where the diagnosis seemed to point towards tubercular infection. In one case I removed 85 distinct glands from the neck, some of them as large as a fist. It has often been necessary to dissect them away from the sheaths of the great vessels.

So far as possible the attempt has been made to ascertain

THE ORIGINAL POINT OF INFECTION.

This has been found occasionally in a diseased or injured condition of the scalp, first involving the occipital glands and extending secondarily to the anterior chain. In a few cases furunculosis of the external auditory canal has apparently furnished the point of entrance, and sometimes facial furuncles and abscess have been the starting-point. In one case the trouble began over the zygomatic process, and the chain of glands under this process were first invaded. At the time of operation all of the cervical glands on the left side were involved. This patient was a man of forty years of age, and he died of general tuberculosis eight months after the operation. In another case the same glands under the zygoma were affected, but no external point of infection could be made out.

By far the greatest number of cases, however, take their origin in the cavities of the mouth and nose. Decayed teeth probably often offer the point of entrance for the bacilli; while ulcerations of the gums, fauces, pharynx, larynx, nostrils, tongue, floor of the mouth and frequently the ton-

*Read before the NEW-YORK COUNTY MEDICAL SOCIETY, Sept 26, 1892.

sils have appeared to be the starting-points of the glandular infection.

The tonsils, in my opinion, form a frequent source of danger. Any acute or chronic inflammation offering a favorable place for the lodgment of the bacilli,—they multiply, set-up the tubercular ulcerations, and finally extend into the cervical glands themselves. Whenever the point of origin for the disease can be certainly made out, we find at the operation that the glands directly communicating or contiguous to this spot, are the most diseased, giving a decided impression that they were first attacked. These glands also often show a very much larger number of bacilli than those farther removed from the point of infection.

Very often, however, the most careful observation and interrogation

FAIL TO REVEAL ANY KNOWN CAUSE

for the trouble. Frequently we get a tubercular history in the family indicating a constitutional diathesis favorable to the invasion and propagation of the bacilli. But in a considerable number of cases even this tendency does not seem to be present. It is often found that the invasion follows the glandular inflammation of eruptive fevers; and colds in the head and sore throat have sometimes proven the origin of the trouble.

In no case have we been able to make out definitely

A PRIMARY PULMONARY INVASION,

—in spite of the statements that have been made from time to time that the lungs offer by far the most frequent point of invasion and that the bronchial glands are consequently the primary seat of the glandular disease. This is contra-indicated by the continued immunity of the patients from further tubercular trouble after the removal of the diseased chain. If the bronchial glands were most extensively involved, the removal of the disease would never be possible and reinfection would rapidly follow. This could, too, account only for a general glandular tuberculosis, never for a simple

cervical involvement; for there is no direct communication between the bronchial and cervical series of glands. In one of my cases the original source of the infection was in the antrum.

Pathologically we recognize

A VARIETY OF DIFFERENT CONDITIONS,

all depending upon the same cause—the tubercle bacillus—and only representing different stages of the same disease. As we have already said, the point of infection can be traced by the condition of the glands at the time of the operation. Those in contact with an infecting point will be found in an advanced stage of caseation; while those at the lower part of the neck may be simply the seat of a parenchymatous inflammation, without degeneration of gland tissue. Or, the glands lying close to the alveolus may be reduced to encapsulated abscesses, the gland tissue being completely destroyed and the gland capsule answering for the capsule of the abscess; while those lower down in the chain do not even seem to be enlarged when examining through the skin. In some cases, however, the whole region may be occupied by large, caseated, and degenerated glands surrounded by an area of inflammatory tissue,—rendering their removal, without rupture and danger of infection of the whole wound, almost an impossibility.

THE BACILLUS

is almost always present, the number varying according to the size and involvement of the gland. At times the glands are small, completely destroyed, calcareous, and remind one forcibly of the tubercles so often observed in the lungs and other organs. These offer the poorest prospects of cure. They are too small for successful injection, the majority of them cannot be made out through the skin, and they are so spread through all the tissues of the neck that their complete removal is impossible. Operation in these cases is often followed by a general infection.

Clinically we are in the habit of recognizing

FOUR CONDITIONS :

1st,—The simple inflammatory stage without degeneration, but with distinct local points of infection. Simple glandular enlargement.

2nd,—Simple glandular enlargement without a recognizable point of infection, but with or without a tubercular family history.

3rd,—Degenerated glands.

4th,—Calcareous glands of small size (gland tubercle).

The first or simply

INFLAMMATORY STAGE

is the most satisfactory form we have to treat. The removal of the infecting source, rest, and constitutional care, often allow the individual to overcome the condition. No external irritation should be employed (this applies to iodine, poultices, etc.). Instead, the neck should be kept as quiet as possible, Treve's splint being employed if necessary; and the troublesome tooth should be removed; the tonsils treated or removed, as the case may be; and any other point of infection removed with the spoon, cautery or any other means applicable to the particular case. In case improvement does not follow promptly, extirpation should be undertaken before degeneration and further infection of other glands takes place.

In the second group, or simple

GLANDULAR ENLARGEMENT

without a discoverable point of infection, if there is a marked difference in the size and consistency of the glands,—the larger and more degenerate being nearer to the points where bacilli most often find their entrance,—it may be taken for granted that there has been a lesion in this locality which has healed; and the general treatment would be the same as in the preceding case.

If, on the other hand, the whole chain seems about equally involved, or the advanced glands are distributed at intervals along the chain, and there is a well marked

family tendency towards the development of tubercular disease, the probabilities favor a general infection. In this case a most careful physical examination is essential. In fact, this should be insisted upon in every case of glandular disease coming under observation; but it is especially important in this series of cases to determine whether other lesions are discoverable, and whether any other glands of the body are invaded.

If no other lesion can be made out, operation may be undertaken in the hope that the glands are but a local point of infection and that their removal will enable the patient to escape the threatening tubercular invasion. It may become necessary even when other lesions are present, to remove the glandular tumors in order to relieve distressing symptoms resulting from their size and pressure.

In both these groups of cases it will always be advisable to try, before attempting removal, the effects of some of the

INJECTION METHODS.

Thus SCHWARTZ, REBOUL, COURTIN, and NÉLATON have used carbolic acid and camphorated naphthol for arresting the progress of the disease in the glands. Iodine by injection and in combination with electricity is frequently employed. LANNELONGUE advocates the injection of a solution of chloride of zinc about the tuberculous foci, forming an encapsulation of inflammatory tissue. VERNEUIL recommends a solution of iodoform and ether, and this has been modified, because of the pain following its use, by substituting glycerin or olive oil for the ether.

We have had an opportunity of applying this last method in a number of cases. A ten-per-cent emulsion of iodoform in glycerin is made, and, before using, it is carefully sterilized by placing the bottle containing the emulsion in a pail of water which is then boiled. After boiling for fifteen or twenty minutes the bottle is removed and allowed to cool to a temperature that the patient can bear,—say 125° to 110° F. An ordinary hypodermic syringe fitted with a

small exploring-needle is prepared at the same time by filling it with boiling water and immersing it therein several times. It is then filled with the emulsion. Previous examination having determined the gland that is farthest advanced in the disease, it is grasped in the thumb and finger of the left hand and drawn forwards until the skin is stretched firmly over it. The needle is then plunged into the gland tissue and the injection begun.

THE QUANTITY TO BE INJECTED

varies with the age of the patient and the size of the gland. The latter limits the amount naturally; for it soon becomes so tense that no more can be injected without danger of rupturing the capsule,—an accident we are anxious to avoid if possible. If the gland is small, probably five or ten minims are all that it will contain. If it is large (say the size of an egg), it may hold half a drachm. In case of a small child a single injection of five minims is satisfactory for the first time; in an adult half a drachm. I prefer to feel my way gradually,—making sure that I am not dealing with a patient with an iodoform idiosyncrasy and am well within the poison line.

Twice to three times a week

THE INJECTION IS REPEATED,

increasing the quantity each time by from one to ten minims; not necessarily throwing the increased amount into the same gland, but selecting others for the injection and dividing the quantity. Nor is it always advisable to inject the same gland each time. It should have time between the injections to absorb all of the emulsion. This can be approximately determined by the elasticity of the tumor. While it still continues tense as after an injection, it is not touched; but as soon as it recovers its elastic glandular condition, as proved by the sense of touch, it is injected anew. By this gradual increase the disease may be arrested, and absorption in the enlarged glands may progress quite rapidly.

IN ONE CASE

treated at the Post-Graduate Hospital two years ago, the glands on the right side of the neck had been removed, but soon thereafter the disease appeared on the opposite side and in the axilla of the same side. The patient also had several tubercular ulcers along the cicatrix on the right side. Operation offered little prospect for continued relief, as there was dullness in the apices of both lungs. He was having night-sweats, emaciation, cough, loss of appetite and of weight, and had become so weak that he had been obliged to give up his position as a bartender. Injections of the glycerin emulsion were begun, and continued for nearly a year.

There was a gradual diminution in the size of the glands, the sweats disappeared; he gained strength, the dullness in the lungs became less; and at the end of the year, although by no means well, he went back to work and disappeared from observation. About six months later he came to the clinic again. He had gained forty pounds in weight; his lungs were much improved, although not entirely clear; he had no night-sweats and declared himself too well to go on with treatment, although he was urgently advised to do so in the hope of entirely freeing him from the glandular enlargement.

This is the most marked case we have had; and here the treatment undoubtedly had

A BENEFICIAL EFFECT

not only upon the glands but upon the whole condition of the patient. I do not want, however, to be considered as advocating this method as a cure-all for tubercular trouble. The pulmonary involvement in this case was purely secondary to the glandular disease, and was caught at the very beginning. The improvement in the patient's general condition, I believe, had more to do with the arrest of the process in the lungs than the injection. That this in-

jection has a beneficial effect upon tubercular glands, is unquestionable; but it must actually come in contact with the region infected by the bacilli.

This method is *not useful* in the other two groups, except following operation.

In the third group,—

DEGENERATED GLANDS,

nothing is of any avail save operation. Often these glands have already ruptured their capsules and have fistulæ extending through the skin. They are surrounded by an area of inflammatory tissue. These glands as well as those in the last group,—the calcareous—should be

CAREFULLY EXCISED.

The incision should be free; for, even though only a single isolated gland appears to be all that is involved, it will be found when it is removed that others not discernible before are involved in the disease. Then often the glands dip down to, and are attached to, the sheaths of the great vessels, and most careful dissection is necessary for their successful removal. Here it is absolutely essential that the incision should be of sufficient size to give room for a free dissection; any other means of approaching these tumors must increase the danger.

IN CALCAREOUS GLANDS,

extirpation is apt to be less satisfactory, in consequence of the large area involved in the disease. The tubercles seem to infiltrate every tissue, and the complete removal is impossible. They cannot be dissected out; but

EACH ONE MUST BE ISOLATED,

cut-down-upon, and then scraped away with the spoon.

In all these operations it is the aim of the surgeon to have the wound heal by primary intention. This is perfectly possible in all cases where the glands have not ruptured and where the dissection has been perfectly clean. In these cases I do not even employ a drainage tube, except in cases of extensive excavations that cannot be closed by pres-

sure,—when one is placed in the lowest angle of the wound and removed in twenty-four hours; a stitch having been put in place at the time of the operation, to close this part of the wound as soon as the tube is withdrawn.

In the cases

WHERE INFECTION OCCURS

in consequence of the rupture of the gland, however, either free drainage or open treatment must be employed. In either case it may be necessary, before the treatment is complete, to treat a tubercular abscess occupying the whole region of the operation; or to scrape away, two or three times, the tubercular granulation tissue that springs up in place of the healthy granulations.

In all cases of *cervical adenitis* it should be remembered, that the probabilities are that the operation will be most difficult and tedious, and it should only be undertaken when every preparation has been made for a capital operation.

24 W. 50th St., NEW-YORK CITY.

CHOLERA ASIATICA: SOME FACTS AND HINTS.

By G. BJØERKMAN, M.D.

When ROBERT KOCH, the leader of the scientific expedition in Egypt, 1883, discovered the inciter of Asiatic Cholera in form of the comma-like bacillus,—and, shortly afterwards, RIETSCH and NICATI by introduction into the duodenum, of cultivated comma-bacilli, produced the veritable Asiatic Cholera in guinea-pigs,—then first the ground for a radical study of this disease was laid, and hundreds of scientific men since that day have spent their time and labor to investigate its nature and treatment.*

The results, alas, seem not to be in the least proportion to such a great amount of work,—the practical results at least,—when we consider the enormous loss of life from Cholera now going on in just the very same cities where so many trained brains are

working on this problem in the brightest light of modern science.

We have, however, no reason to blame; but merely, to complain.

Nevertheless, through the works of the investigators we know a little about the nature and quality of Cholera Asiatica, —very little indeed, but enough to let us foresee which routes

A FUTURE SUCCESSFUL TREATMENT

will follow, to master the frightful enemy. Let us then combine some of these facts to see what can be done—

Firstly, to prevent the disease; and,

Secondly, to reduce its pathologic actions in the human system.

Before that, we properly have to devote some lines to the bacillus and its behavior outside and inside of the system (albeit incorrectly, we will here, for simplicity of demonstration, consider the alimentary canal as belonging to the *inside* of the system).

THE COMMA-BACILLUS

is shorter, but a trifle thicker than bacillus tuberculosis, well known, I suppose, to every physician—and the methods to prepare this bacillus for microscopical examinations are about the same as for preparing the bac. tuberculosis, but the coloring fluid must be methyl violet, without any previous treatment with acidulated baths, etc.

When examining, you find the bacillus very often bent like a comma or even a small semicircle. In properly adapted liquid media they are endowed with very lively motions; and, when cultivated on gelatines (alkaline), these bacilli grow out in long, screw-like threads (spirilli).

The human body-temperature is the most fitting for their development; below 62° F. they seem to become inactive; it takes, however, a good deal lower temperature to kill them.

These micro-organisms thrive and multiply rapidly in certain alkaline fluids, as milk, beef-tea, etc., and under favorable con-

ditions they may live and multiply freely in those solutions for weeks, outside the body. Moisture seems to be a "condition sine qua non," because they always become destroyed if allowed to grow dry. Oxygen is necessary for their existence. Enough of dry air, broad sunlight, and many hygrophilous chemicals, will kill them easily.

Another antagonist to these bacilli is acidity. KUEHNE showed already in 1890 that a small trace of acid will prevent their development in gelatine, and a few drops of acid will instantly arrest their movements in the solutions; more of the acid, added, will kill them altogether.

The question, now, is to show in what way

THE BACILLUS GETS ACCESS

into the human system; under what conditions it can properly exist and develop in the body; and what the results—anatomically, physiologically, and clinically—are.

Whenever the Asiatic Cholera is transported from its home, the East Indies, it always follows the commercial tracks. It never uses the air streams to spread (like the influenza, etc.), but follows the lines of communications used by travelers. It never *jumps* forward.—Why?—Because the germs use the human *dejecta* as carriers, be it directly from man to man, or mixed with drinking water, milk, etc., or adhering to provisions or other articles of use.

Moreover, the germs must get access to the alimentary canal,—that is, mouth, pharynx, gullet, etc.,—before they can enter on their pernicious work.

The comma-bacillus is never found in the human system except in the alimentary canal; never in the blood, never in the glandular system nor in the different bodily fluids which we name secretions,—only in the bowels and what they contain.

It is, besides, not a very easy task for the bacillus to reach the bowels belonging to a healthy person provided with a good digestion. A healthy stomach has the best guard

against the Cholera bacillus, in the acid condition of the gastric juice.

We know that small traces of

ACID WILL INTERFERE

with the life of the bacilli, and the normal human gastric juice is acid enough to kill every one of them if they are allowed to stay in the stomach for a little while. But we know from experiments by KUEHNE, RICHET, and BEAUMONT, that small amounts of fluids and fine-cut meat can pass the pylorus within a few minutes; and if a large amount of water, for instance, is swallowed at once, part of it will pass the pylorus the very next moment.

In such a case even the healthiest man could get some germs unhurt into the bowels;—and that is all we need, to have the dreadful disease developed in a few hours.

The incubation time is stated to be from 1 to 2 days; but in such a case I suppose the symptoms will show a good deal sooner.

From the above-said we understand thoroughly why *dyspeptics* are the first to get the disease. BEAUMONT has proved that a decrease of acid gastric juice is the result of fever. MANASSEIN and HOPPE-SEYLER showed that such a gastric juice is very weak in its action; and BEAUMONT's experiments show also that acute or chronic disturbances of the peptic system partly or fully interfere with the production of a normal succus gastricus. In those cases it is proven to be the lack of acid, and not the less amount of pepsin, that is the principal cause of trouble.

If the human stomach were not provided with this acidity, I am sure that the Cholera even on its first journey would have swept away half of humanity.

Let us now see what the result will be if one or several of the

BACILLI PASS THE PYLORUS

and get introduced into the intestinal system.

It was said above that a fluid of alkaline reaction highly favors the vitality and action of the comma bacillus. Moreover, that the body temperature is the best for its develop-

ment. Consequently, a better soil than the intestinal fluids could not be found for their growth; and they will at once begin to develop their immense fecundity, and multiply with such a speed that the whole bowel in a few hours is filled up by millions and myriads of these dreadful germs.

Now,

"THE ABOMINATION OF DESOLATION"

sets-in. The first sign of their existence in the bowel, anatomically, seems to be an increased flow to the vascular parts of the serosa, and even submucosa,—due to irritation.

Very soon the signs of catarrhal inflammation develop; the solitary follicles and Peyer's patches begin to swell and become peripherally congested. All the intestinal glands increase their work, and very soon a slippery layer of tough and glassy mucus covers the epithelium all over. Hæmorrhagic spots appear in the submucous strata. The slender, delicate epithelial cells can not any longer bear the enormous over-irritation; they begin to stagger, loosen their foothold, and become swept away from large surfaces. The bowel, thus getting rid of its osmotic regulators, and being also deprived of the lymphatic aids in the follicles and agminate glands, will soon become over-filled with secretions; and blood-water freely passes through the walls of the vessels. Alkaline, bloodwarm water!—which in the highest degree will favor a new immense increase of the guzzling bacilli.

They, in the mean time, have not been idle. Like all other living beings, these small germs have to produce

DISASSIMILATORY PRODUCTS,

—and, in this case, very poisonous ones indeed. We name such products of bacterial origin ptomaines; and the special alkaloid produced by the comma bacillus is variously named CADAVERINE, PUTRESCINE, etc. This product of bacterial (vibrionic) life has been thoroughly studied first (1886) by the discoverer, BRIEGER (*Deutsche Med. Wochen-*

schrift, 1887; No. XV, page 305), and later-on by KOBERT, of Dorpat (*Th. Monatshefte*, 1891.) These authors agree on its action as that of one of the most powerful central poisons.

With cadaverine-injections, BEHRING (*Deutsche Med. Wochenschr.*, 1888, Nos. XXIV, XXXII, and XXXVII; 1889, XLII and XLIII) succeeded in producing symptoms in mammalia, identical with those of Cholera Asiatica. This powerful product of the Cholera bacillus is the head cause of all the symptoms of the plague. The irritation in the bowel is due mostly to this ptomaine; and when the epithelial destruction is started and the osmotic disorder breaks out, great amounts of cadaverine seem to be taken up in the blood.

Once introduced into the circulation, it is able to attack the very finest and most important parts of the system: the vaso-motor and respiratory centres, the ganglia of the the heart, centre of the temperature (?), and kidneys.

We find from the above, that preventing the Cholera from introduction into the system coincides with the fight against the bacillus itself. To cure the disease and abate the symptoms will constitute the fight against the cadaverine. We shall hereinafter find that some of our remedies will do double service, by attacking both the bacillus and the cadaverine.

Now for

THE NATURE OF CADAVERINE:

According to BRIEGER and BOCKLISCH, this alkaloid is composed of $C_6 H_{14} N_2$ (being thus isomeric with Saprine and Neuridine). It is a di-amine, and makes its appearance in animal putrefaction after the choline is gone. Patients with cystinuria produce cadaverine by the kidneys. Some of the micro-organisms (Vibriones) also produce this ptomaine. Cadaverine is a syrup-like fluid smelling much like Coniine and Sperma. SCHEUERLEN, GRAWITZ, and BEHRING have examined it and tried its nature even experimentally. SCHEUERLEN and GRAWITZ found:

- 1,—Cadaverine produces suppuration (denied by Kobert);
- 2,—interferes with the coagulation of the blood;
- 3,—acts deleteriously on other bacilli;
- 4,—poisons warm-blooded animals.

According to BEHRING:

- 1,—Cadaverine decreases the bodily temperature;
- 2,—produces death under tonic spasms, paralyzing the centre of respiration;
- 3,—produces desquamation of the epithelial coverings in the bowels, with gathering of ricewater-like fluids in the gut;
- 4,—causes extravasation in several organs.

Later-on, KOBERT experimented with the

MURIATE OF CADAVERINE

on cats, rabbits, guinea-pigs, rats, and many other animals. His experiments and their very significant results are of such importance that we must report some of them:

First, he injected into the blood 200 milligrammes of muriate of cadaverine per kilogramme of body-weight (1:5000), without getting any serious symptoms. Then he used *hypodermic* injections in the following measures:

Guinea pigs...	400 milligrammes (6 grains)	in each
Rabbits.....	600	" (9 ") " "
Rats.....	1400	" (22 ") " "
Cats.....	2000	" (31 ") " "
Frogs.....	2500	" (37 ") " "

and none of the animals experimented-with died. Thus we find that the muriate of cadaverine may be considered as a *very mild* kind of poison, if any poison at all.

The same may perhaps be said about some other salts of the alkaloid; for instance,—tannate, lactate, and citrate.

The question now is, how to convert the cadaverine—1st, in the blood; and 2d,—already taken up in the system—into

A HARMLESS SALT.

We have seen CATANI (1884) and other physicians treat Cholera with the most splendid results by enteroclysmata containing tan-

nin (from 3 to 6 : 2000) or salicylic acid.

In Hyderabad, Dr. HEIR (1890) claims to have had the best results from salol given internally, 60 centigrammes (9 grains) 4 times a day; and we know that salol becomes split up in the bowels into carbolic acid and salicylic acid.

Those

ACID TREATMENTS

abate, in the same time, the bacilli with their products; and decrease the alkaline condition of the blood, which also may be of importance.

It seems to be impossible, however, to stop the action of cadaverine if once taken up in the system in doses large enough to interfere with the central functions.

We can, may be, keep up the strength of the patient with good nourishment (beef-tea, wine, etc.), and stimulate the nerves and nerve centres; but if the amount of cadaverine be but sufficient, the stimulations will very soon be of little service.

The question is, therefore, to directly

INTERFERE WITH THE CADAVERINE

already in the blood. Yet, we know nothing for certain about such a treatment. Prophylactic inoculations have been proposed; but the results are very doubtful and very irregular.

It seems to be a very essential exigency to experimentally investigate the behavior of cadaverine toward acids and acid salts injected into the blood.

We know that CIARAMELLI (1885) had the finest results in treating Cholera by hypodermic injections of iron citrate, in the very algid and asphyctic stages.

He injected 3 times a day a full syringe of a 10-to-12-per-cent solution of this salt (being=20 centigrammes (3 grains) of Iron, per dose,) and the successful results were at that time referred only to the action of the iron.

From what is above said, however, it may be considered more likely that the acid com-

ponent of the iron salt had some direct action on the free cadaverine.

The quick recoveries without any serious complications in the cases of CIARAMELLI indicate evidently something strongly interfering with and neutralizing the absorbed ptomaine.

OF OTHER TREATMENTS

we wish to name only MAESTRE's,—claimed to be one of the best, according to its results. But his very tiresome apparatus—with 5 different injections, sometimes repeated 3 to 4 times a day—seems to be a little too complicated in practice.

His treatment of the Cholera collapse with chloral injections seems to be of good value, and even here we may be dealing with a neutralizing of the cadaverine, when we know that chloral in the blood is changed into an acid product,—afterwards visible in the urine as uro-chloralic acid, and later as glycuronic acid.

The future will show—sooner, perhaps, than we believe—which treatment will be the best.

But, before that, it is a duty for every one of us to try, theoretically or by experiments, to come as near the truth as possible.

RACINE, Wis.

CHOLERA TREATMENT ANTE "BACILLUM."

By J. KORNITZER, M.D.

This disease differs widely from the rest of the zymotic class by a *protracted and, therefore, very deleterious stadium algidum*; that is, that stage of general spasmodic contraction of the whole vascular system, (*rigor*), which ushers every zymotic disease,—without, however, usually attracting much attention, as it most assuredly does in the disorder to be considered here.

Leaving the question of ætiology to our noble staff of investigators to discuss, I directly proceed to the consideration of the *morbid processes* taking place in the system attacked with cholera; i. e. to the analytic explanation of its

PATHOLOGY.

1. Spasmodic contraction, stealthily and by slow degrees, sets in all over the vascular system: heart, arteries, veins, and lymphatics.

So slow is the march of this steady process that, in most individuals, days may elapse before the seriousness of the condition becomes manifest. The discharges from the bowels are somewhat copious, it is true, but by no means alarmingly excessive, and scarcely, if at all, painful; and, therefore, slighted by the patient. He remembers *apparently more serious* cases of diarrhœa having occurred with him before.

This stage is called the stage of "malaise."

2. But as this steadily increasing general contraction of the vascular system reaches a certain degree, things assume quite different features.

As the vessels more and more contract upon their contents, the intravascular pressure becomes excessive; and, by the simple laws of hydrostatics, *the blood will escape to where there is the least resistance, i. e., to the capillaries*—the widest, least contractile and least resistant part of the circulatory river-bed.

3. Under such circumstances the transudation of blood-serum through the walls of the capillaries and minute vessels must assume a measure far exceeding the normal; it will be stormy and copious. General œdema! Œdema of the brain (dizziness), œdema of the skin (clammy sweat), œdema of the lungs and glottis (dyspnœa and aphony). But, above all, *œdema of the mucous membrane of the entire digestory tract*, because of the rich vascularity of this vast organ and because of this vascular apparatus being imbedded in the softest, most yielding tissue of the system.

This transudation on the inner surface of the intestinal canal, impetuously precipitated, as it is, under the excessive pressure, must necessarily detach a great deal of

epithelium; hence those characteristic "rice-water" evacuations.

The kidneys, under the circumstances, are greatly under disadvantage, as to discerning surface, against the skin and alimentary duct, where the liquid part of the blood is "so recklessly" squandered. The secretion of urine, therefore, will be suspended and, on account of the acute cachexy and the œdematous condition within the tubules, the epithelium of the latter will be detached. Hence the kidney disease—resembling morbus Brightii—consecutive to cholera.

4. Thus, the bulk of the contents of the vascular system dwindles down until, as before death from profuse loss of blood, spasms of the emaciated and de-hydrated muscles make their appearance. Excruciatingly painful cramps of the extremities torture the patient; his abdomen is sunken, and hard as a board; and the spasmodical contraction of the "prelum abdominale" expels the serous contents of the bowels and stomach. There is an agonizing pain in the precordial region, in consequence of the spasmodic contraction of heart and diaphragm. Spasm all over!

5. Under the existing statical circumstances, resorption from the alimentary surface cannot reasonably be looked for; nay, imbibition, even, or endosmosis, has become practically impossible. Hence, whatever, in this stage, may be ingested into either the stomach or the rectum, will be promptly rejected or lie there inert, to do more harm than good. This stage (2.3.4.) is called the *stadium algidum*; the stage when the "doc." is urgently called for.

If not fatal or checked by either medical help or nature's own endeavors, this stage makes room for:

6. The *typhoid stage* (cholera-typhoid), a condition due mainly to irreparable destructions effected in the parenchyma of the intestinal mucous membrane; patches of which, by the impetuous (active) œdema of the foregoing stage, have been lifted off their

underlying stratum of connective tissue and, thus deprived of nutrition, have turned into a sphacelous, diphtheritic, septic detritus, the absorption of which must needs excite typhoid symptoms. But uræmic intoxication and a general acute marasmus, too, enter for much into constituting the stage under consideration.

There is, now, general vascular relaxation (reaction).

Far more could be said in analyzing the phenomena of cholera; but, this not being intended for a classical dissertation, I only gave the points necessary for the purpose of drawing indications for

Treatment.

FIRST INDICATION:

Check the spasm,—both vascular and muscular!

In effecting this—and within five to ten minutes, too—a most essential therapeutic service has been performed; albeit but symptomatic, as it may be. For, from what has been said, it will be easily understood that the vascular spasm, by its endurance and violence, is the most deleterious feature in cholera.

To fulfill this *most urgent* indication, make, in the “stadium algidum,” a hypodermic injection of one-fourth of a grain of morphine in the gastric region—and, if necessary, a second one.

From the sufficiently explained stormy, ravaging nature of the algid stage it may be easily inferred how precious *every minute* ought to be considered, to promptly fulfill this first indication, hereby affording a therapeutical service of great abortive value.

An army of skilled “injectors” ought to be enrolled in the large cities from among physicians, students, nurses etc.; whose duty it would be, to administer the morphine injection, *before* the patient can be taken to the hospital or attended to by his physician.

A few minutes after such injection the patient will not fail (I speak from experience)

to express his comfortable feeling. But, without waiting for this gratifying effect, immediate steps should be taken towards fulfilling the

SECOND INDICATION:

To vigorously try to prevent sepsis, menacing from the absorption of the ichorous deposits in the parenchyma of the intestinal mucous membrane.

To reach this end, it would prove an utter failure and a culpable loss of precious time, should one here call into requisition the services of the stomach and bowels. But rather inject hypodermically (*on the abdomen*) four to five syringefuls of a somewhat strong solution of muriate or bisulphate of quinine. Repeat this (*on the back*) every four to six hours during the first twenty-four, *in order to keep the blood slightly acidulated and resistant to sepsis.*

Be sure to make all injections *hypodermically*, not *endermically*,—and thus avoid trouble.

In case of necessity, prescribe, on the second day:

Zinc sulphate, pure, ℥j; Acid carbolic, cryst., ℥j; Distilled water, ℥viiij; Fluid extract opium, ℥j.

A tablespoonful or two of this mixture to be added to a rectal injection of four ounces of lukewarm starch water of creamy consistence. Give such enema every twelve hours.

Also prescribe:

Salol, ℥ss; Opium, gr. iij; Sugar of milk, ℥ij; divide into 16 doses.

One dose every hour as long as deemed necessary.

THIRD INDICATION:

Refill the vascular system and dilute the inspissated blood.

Give alternately a piece of ice wrapped in a napkin, to suck; cold punch with lemon and wine (no brandy); sour whey, good buttermilk, hot black coffee, broth, beef tea, etc.;—all in *very small* but frequent draughts.

In the prodromal diarrhœa (malaise), *don't*

even try to enter into any dealings with the alimentary tract. Rather keep your patient in bed and treat him as though the algid stage had already set-in—"not a bit" less! Commence with the morphine injection—for the spasmodic contraction of the vascular system *has* already set-in, as manifestly shown by the thin, hard pulse and the beginning discoloration of the face; and then proceed to the hypodermic and rectal injections described above, and the salol. Calomel is not to be used, because of the muriated condition brought about in the blood by the injections.

FOR PROPHYLAXIS,

besides the police and personal hygienic measures, I should recommend a solution of one grain of corrosive sublimate in two ounces of glycerin and fourteen ounces of *really* distilled water, as an occasional gargle, and as a draught; a tablespoonful of which could be taken every twenty-four hours,—with occasional interruptions. (Take this for what you may deem it worth.)

The foregoing theory and practice of medicine in cholera Asiatica dates back to a period(*) when the comma-bacillus was unknown as yet.

During the Austro-Prussian war of 1866, a raging cholera epidemic broke out in Moravia, then densely occupied by the Prussian army.

At the time, I was holding the position of surgeon-in-chief of a ward in a hospital established at Klosterneuburg, near Vienna, for the wounded in battle. No sooner had I learned of the presence of the pest and the fact that physicians willing to go to the scene of horror were in demand and would be appointed by the government, than I left my hospital and hurried to Moravia.

The hypodermic syringe was, comparatively, a novelty at that time; and the idea

of its probable high usefulness in cholera, where the alimentary canal proves so faithless a recipient and carrier of medicine in most urgent need, had, for quite a while previous, busied my mind. I was, so to say, longing for a cholera epidemic.—There was one—and what a one!

It was then that I originated the use of the hypodermic syringe to fulfill the above first and second indications in the treatment of cholera Asiatica. The success was quite surprising.

It is a heart-felt wish of mine to have the knowledge of the treatment here described, quickly and widely spread among the profession in these days of visitation. Could I find a better medium of propagation than MERCK'S BULLETIN?

SOCORRO, N. M., September, 1892.

CREASOTE, in doses of 4-19 drops daily, has produced good results in the hands of Dr. T. VALENTINE in *diabetes mellitus*.

HOT WATER, by enema, has been warmly recommended as a hæmostatic in *post-partum hæmorrhage*, or in threatened *abortion*.

CAMPHORIC ACID in 2% solution, applied on a cotton tampon, is reported as affording prompt and permanent relief in *acute coryza*.

SALICYLIC ACID, while formerly condemned as a *diuretic* by most authorities, is now warmly recommended as such.

EUPHORBIA-PILULIFERA TINCTURE (15 drops every two hours) is lauded as being very efficacious in all forms of acute "*cold in the head*."

CALCIUM SULPHIDE in $\frac{1}{20}$ -grain doses is reported to prevent the formation of *boils*, and in $\frac{1}{4}$ -grain doses to hasten their suppuration.

AMMONIUM ACETATE, in 15-grain doses, is reported to have given excellent results in *scarlatina*.

(*) With the exception, of course, of the use of salol, which is of recent date.

MEDICINE ABROAD;

AS REPORTED BY OUR FOREIGN STAFF.

European Editor: H. BAILLON, M.D.,

Professor in the "Faculté de Médecine de Paris"; President of the "Société Linnéenne de Paris"; formerly Professor of Hygiene at the "École Centrale des Arts et Manufactures"; etc., etc.

{ Merck's Bulletin Office, 12 Rue Cuvier,
Paris, August, 1892.

It is not often that the general public here bother their heads about medical matters. If they have emerged, in this respect, from their habitual indifference, it is the

CHOLERA

that is the cause. This word has, among the masses of the people, a terrible power. Folks of our times still speak with terror of the first great invasion of cholera in 1832, which took so many victims in so short a time,—among others, the great CUVIER. To-day, it would be better to speak of

THE TWO CHOLERAS:

for if, as I have before told you, some great practitioners of our time profess that there exists but one and the same disease,—the Asiatic cholera,—more or less modified according to its surroundings;—others (and they are the more numerous, if not more celebrated) sustain the theory that Europe is attacked, from two sides at once, by two essentially different diseases.

Without doubt, so far as symptomatology and pathological anatomy is concerned, they certainly admit the existence, in Asiatic cholera and cholera nostras, of a nearly complete mutual identity of characteristics; but it is the lines of propagation of the two diseases which seem to them entirely different; and there is in this really something of so positive a nature that it should give cause for reflection to conscientious practitioners and careful observers.

I have nothing new to say to you concerning the habitual course of that species of cholera which comes to us from the banks of the Ganges. It is always much the same

thing, and everyone recognizes the rapid and non-intermittent dash with which it makes its way directly from the East to the West, and which will perhaps cover the shores of the Atlantic before the beginning of winter, if hot weather persists and sanitary measures are not sufficiently pushed.

But what will perhaps be more difficult yet to struggle-against, will be the extension of the small centres of contagion which have until now characterized the cholera nostras in the west of Europe.

For the benefit of the civil authorities of this country, it is thought necessary to spell the name of this latter form thus:

“CHOLERAIC DIARRHŒA;”

for, so as not to scare the general public (which is none the less terrified, in certain parts of the country), there is no such thing as “cholera” in Paris, and it is forbidden to use the word in the official bulletins which flood us with their statistics. Between ourselves, nevertheless, the alleged “choleraic diarrhœa” is, proportionally, every whit as fatal as the Asiatic disease! At the present moment, while the Parisian epidemic decreases in proportion from day to day, yet death still occurs at least once in every three cases, and often very swiftly, and coupled with truly lightning-like accidents. The prognostic is, thus, not a particle less serious than for Asiatic cholera. You know that at Perm, Yaroslaw, Kursk, Ekaterinoslaw, Ekaterinodar, and other Russian towns, the Asiatic epidemic reigns without any very disquieting characteristics,—the mortality there being actually very small, proportionally, compared with the cholera mortality in Paris.

But, on this point, let me tell you of a fact, generally little known, and which you will find quite remarkable :—In Paris itself

NOT A SINGLE ENDEMIC CASE

of cholera has, so far, appeared! All those which have been observed, whether their termination was fatal or not, were contracted in the contaminated suburban districts and thence imported into Paris. Once here,—there may have been contagion on the spot, in the case of a few individuals in the *immediate* neighborhood of the imported cholera patient; but the disease went no farther; *it died out of its own accord; the contagion was essentially limited.*

THE BONNEVAL EPIDEMIC

arose thus :—From the north of Paris, the disease was carried to Bonneval, in the department of the Eure-et-Loire, two hours distant by rail from Paris. At this place there is an insane asylum, which became a fiery centre of contagion, with many and serious cases of the disease, and a relatively high rate of mortality,—but where the accidents have now been gotten nearly quite under control. Now, it was a woman who, from the northern portion of Paris, carried the cholera nostras to Bonneval, and that, too, without herself being attacked by the disease! She carried it there by means of a child, whose mother had just died of the cholera, and whom she was taking to Bonneval. The child died in a tobacco shop where the male attendants of the Bonneval asylum usually went to make purchases. These attendants introduced the cholera among the male patients of the asylum; but the *female* attendants, who did *not* go to purchase tobacco, did not spread the disease among the female patients of the asylum, who were thus saved,—the authorities succeeding in keeping them free from contagion by separating them strictly from the men. And

THUS THE CHOLERA DIED OUT
at Bonneval.

—
The above case, modern and character-

istic as it is, and which we recommend to the attention of American practitioners, is not absolutely new. Similar ones may be found recorded in the works of a physician of true genius, named SYDENHAM;—but, alas, who, nowadays, reads SYDENHAM, in whose works, nevertheless, there is so much to learn, and which have been translated into all languages! He, too, in his time, was accused of

“CHARLATANISM,”

—an outrage, without a doubt. This is, as I told you in my recent letter, the hackneyed insult which the physicians of our day throw in each other's faces. Do you care for some other examples?—There was, until quite recently, in Paris, a

SOCIETY FOR PRACTICAL MEDICINE.

It was not by any means useless. Good work was done there; I have had occasion to bring to your notice several really interesting observations, and of general utility, which had been communicated to it. To-day this society is dead!

One of its members, a well-known specialist, put in his journal (or allowed to be put in) statements that were afterwards criticised as “charlatanesque” and “incompatible with medical dignity.” This society had a “council of censors,” which judged that the culprit could no longer decently belong to the society and requested his exclusion. A vote was taken, but the majority having pronounced itself as adverse to the wishes of the council, many resignations followed, and finally the dissolution of the society was voted. And all this, on account of a *mere accusation* of charlatanism, which was not merited, if we are to believe the voice of the majority. Oh! but for *invidia medicorum!* May the New World never import it from the Old!

—
With us, in France, no one escapes these accusations of charlatanism. Here is just one more notable instance :—You know how at first were received the communications of

a learned experimenter whom America knows well,—relative to injections of

TESTICULAR JUICE.

In the first place those doctors who, from the very outset, adopted the opinions of the eminent physiologist, were denounced as interested parties who wished, from ambitious design, to gain his favor; for he is a very influential light in the profession. The least evil-disposed said that, by his injections, BROWN-SEQUARD had given himself a fever, and they thereupon tried to explain by a febrile movement the phenomena of hyperesthemia which he described. But it may be said that scarcely any one gave serious and impartial attention to the facts evoked. The question is nevertheless there: *Are there or are there not probing facts?* It is purely a question of observation; and it seems that BROWN-SEQUARD asks for nothing else than the proof, the verification of the facts by him set forth.

To-day Dr. DUPUY, the editor of the *Moniteur de l'Hygiène Publique*, a distinguished practicing physician, and an independent man if there ever was one,

AVENGES BROWN-SEQUARD

of the attacks of his detractors in terms which we can but reproduce, without modifying a word. Relative to the subject of the last communication (May 30th) by the discoverer to the ACADEMY OF SCIENCES, on the effects of testicular juice in the treatment of tuberculosis and locomotor ataxia, DUPUY writes:

"In several of the hospital clinics of Paris and in the clinic of Dr. LEMOINE, at Lille, it has been seen that in tuberculosis-patients, this treatment *caused the fever and the night-sweats to disappear*; the cough ceased and the strength of the patient increased, as well as the weight of the body."

This is very precise;—nothing remains but to verify the statements. Tuberculosis patients are not wanting in Europe. If, instead of affirming or denying, right and

left, people would only experiment; and, if here, they do not wish to experiment, why should you not do so in America? Let us listen, once more, to Dr. DUPUY:

"In locomotor ataxia, the efficacy of this medication has also been considerable. BROWN-SEQUARD, in fact, cites the case of an ex-fencing-master of a regiment, ataxic and retired from the army as such, who was *radically* cured after a short treatment. To-day, adds our great physiologist, this man gives fencing-lessons and is able to go through with a score of bouts a day. According to the facts verified by himself and by Dr. d'ARSONVAL, it is possible to-day to

SCIENTIFICALLY FORMULATE

"the following conclusions upon the therapeutic action of the testicular juice matter. The latter, injected in cases of enfeebled old people, rapidly gives them back their strength in durable and definite proportions. In locomotor-ataxia, tuberculosis, anæmia, and other analogous morbid states, this agent tones up the general state of the health, strongly aids resistance to disease, and brings on a fine convalescence.

"Moreover, BROWN-SEQUARD, in order to demonstrate, by an argument *ad hominem*, the value of his liquid,

TRIES HIS STRENGTH

"before his colleagues, on a dynamometer, and the instrument records a muscular strength of 45 kilogrammes. It must be well borne in mind that our learned physiologist is over seventy-five years of age, and that very strong and very vigorous men only succeed in recording on the dynamometer a force of from 40 to 41 kilogrammes. This is, now, the answer given, for the second time, to the skeptics and the guardians of the capitol of the academies, ever contemptuous of everything which does not come from the laboratories of their masters, and refusing to test the experiments of the Collège de France.

"The BROWN-SEQUARD injections may at present be considered as constituting ONE OF THE MOST BRILLIANT DISCOVERIES of modern therapeutics. This method of treatment was rendered practical by Dr. d'ARSONVAL, who has, as is well known, invented an apparatus used for filtering the testicular liquid and sterilizing it (*). There is, therefore, no longer any danger of inoculating an infectious disease or of provoking disturbances in the circulation of the blood.

"Ignorant persons will now understand, it is to be hoped, that the time for ridiculous jesting has gone by and that Dr. BROWN-SEQUARD, Professor of Physiology at the COLLÈGE DE FRANCE, author of a treatment capable of curing certain diseases hitherto thought to be incurable, has a right to their respect!"

—(There is but one more word to be said to American physicians: *Try!*)

Thus, those persons here who had thought to bury the question by treating it with a certain disdain, are obliged to see it anew discussed and sifted. There is now even a certain number of *Russian* physicians who are impartially experimenting with the testicular juice; and at Paris, Dr. A. POEHL has just communicated to the ACADEMY OF SCIENCES the result of his researches hereon. He confirmed the active principle of the remedy to be Spermine. (This base, by-the-way, is found not only in semen, but in many other secretions of the body; in which it abounds; for instance, in the pancreatic juice).

He therefore injects

HYDROCHLORATE OF SPERMINE

under the skin; and he finds, as do the Russian experimenters, that these injections, properly given, not only occasion no accidents, but have a tonic and nervine effect. According to him, this remedy acts on the system as a *real ferment*, whose action might be explained by its accelerating the

physiological oxidation processes of various kinds.—Let us hope that this topic will not soon be stifled!

It is interesting to follow the progress made in this country by

HYPODERMIC MEDICINE,

for which, largely as it is ignored by official teachers, one cannot help predicting the most brilliant future. It has for its foremost exponent *a man of research*, an indefatigably hard-working, ingenious physician—Dr. J. ROUSSEL; and a special periodical whose subtitle reads: "Medical Antisepsy by means of Sub-cutaneous Injections."

This publication loudly proclaims a principle which

PRACTITIONERS SHOULD WELL NOTE:

that, *abuse excepted, there are never any formal counter-indications to hypodermic therapy*. When certain authors indicate as counter-indications the pain and accidents caused by the injections, ROUSSEL replies that he has taken trouble enough to prove that this pain and these accidents are the result of punctures ill-made, of unclean instruments, or of solutions wrongly prepared; and that he has the right not to accept as counter indications these accidents, which never make their appearance in the correct practice of sub-cutaneous medication.

According to his idea, what have been called the "*minutiæ*" of cleanliness and antisepsy universally adjudged necessary in medicinal preparations, as well as in operative surgery, are *absolutely indispensable* in hypodermic practice; no good can be wrought without their strict observance, and THE USE OF THE METHOD SHOULD BE PROHIBITED to those physicians and pharmacists who will not submit to the observance of these so-called "*minutiæ*." It stands, withal, to reason that, for special drugs of highly active or of toxic character, the counter-indications in regard to dosage should be the same as in ordinary practice; for it is most difficult, if not impossible, to cause the im-

(*) See our Paris Letter in *May Number*.—[ED. "M. B."]

mediate evacuation of a toxic mass accidentally injected; but in this case the accidents in question evidently belong more in the domain of toxicology than in that of therapeutics.

Nothing would seem to be more instructive, in this respect, than to show to practitioners how this school understands the *general therapeutic indications* relating to

PULMONARY TUBERCULOSIS.

The latter is divided, from a therapeutical point of view, into four stages:

THE FIRST STAGE comprises *the preparation of the ground*: organic weakness, anæmia, exaggeration of original lymphatism, etc.—All the above may be usefully combated by general hygiene and tonic treatment.

THE SECOND STAGE, according to existing doctrines, begins with *a seeding of the pulmonary ground* by specific micro-organisms, derived from other cases of phthisis and carried to the lungs by “the air breathed,” or, very exceptionally, by other contacts and by other ways to other organs.

The microbe would thus seem to fall on the mucous membrane of the respiratory *primæ viæ* of a predisposed person; it finds it without nature’s protective armor which forms an integral part of good health,—an armor which in our day is defined, firstly, as “normal cells” (such as leucocytes and phagocytes), destruction to parasitic microbes; and, secondly, as “hermetic integrity of the epithelial layer.” Microbes feed on the surface of a diseased mucous membrane, pierce a softened or ulcerated epithelium, and proliferate in the deep “sub-mucous” layer: the invasion has begun.

The treatment during this period of attack consists in *laryngeal medication*, capable of washing and scrubbing the mucous surface and of carrying off the microbes: *i. e.*,—gargarisms; buccal, nasal, pharyngeal, and laryngeal douches; atomizations, and inhalations.

THE THIRD STAGE comprises *the colonization of the microbes*, broadly spread over the lungs; and *general intoxication*, which has thenceforth become progressively self-propagating.—The therapeutic indication, here, is the *most stringent use of pulmonary and even general antiseptics*.

THE FOURTH AND LAST STAGE consists in *the destruction of the pulmonary parenchyma and the absorption of the pus*:—*cachexy* sets-in.—Here, besides using the classes of medicaments just cited, it is necessary to back-up their action with *disinfectants* and drugs which act as *destroyers of the septic cells*.

—From the commencement of his practice, ROUSSEL says, his feeling of responsibility toward those who confided themselves to his care, inspired him with the ambition to obtain really tangible, efficacious and rapid

THERAPEUTIC RESULTS;

it made him “deplore the paucity of medical means as taught by the Faculty,” and to note the insufficiency and unreliable working of the medicaments administered through the mouth and the stomach. In 1863, physicians were still satisfied to look-on and see phthisical patients die, as the disease was then considered incurable.

It was necessary to seek a dressing for these pulmonary wounds, a purification of this purulence, a means of drying-up these night-sweats, and an alimentation fit to cope with this general debility.

THE OFFICIAL THERAPEUTIC DOCTRINE

only favored the destructive efforts of the disease,—only deprived the patient of his vitality and his capacity for resistance. Opiates depressed the brain and benumbed the stomach; topical irritants increased the general irritation, the pain, and the fever. To a lessened respiratory surface, only rarefied, over-heated, and impure air was allowed to penetrate. Efforts were made to excite the slackened digestion by means of pepsins and peptones, which digested the mucous membrane itself and made it still

more susceptible to the action of the infectious ferments. The lung became more and more ulcerated by contact with iodic or creasotic corrosives. Diarrhœa and vomiting were super-induced. It was no longer normal and nutritive chyle which the vessels absorbed, but serous matter and pus. Then, hectic fever and cachexy could not help coming on apace.

—This picture is perhaps a little sombre in coloring; but *the resemblance* can certainly not be denied.

"He who allows himself," says ROUSSEL, "to seek for what is not indicated in the 'books, what the teachers themselves have 'not found, is, for his associates, a 'charlatan.' Good enough to be spat 'upon while he works and searches,—he 'will equally be good enough to steal 'from, if he succeeds in finding."

ROUSSEL wanted to intrust the blood with the care of bringing to the lung a remedy susceptible of vaporization and aeration; because the lung is so constructed as to act by means of both blood and air. It was necessary

TO DISCOVER A VOLATILE DRUG

which would mix with the blood without altering it, and which would vaporize at the temperature of the lungs. This substance, permeating the pulmonary membranes in a state of vapor, would have for its object both, the leaving-intact of the normal living cell in all its integrity, and the modification if not the destruction of the pathogenic cell.

Essential oils, ethers, and alcohols are volatilized at the temperature of the blood. Essential oils alone, however, are practicable, being,—at the normal temperature, neither too volatile nor too little so; they alone, also, are sufficiently disinfectant and antiseptic. Most of them, however, are too caustic, and for this reason the oil of Turpentine was rejected. The oils of Lavender, Orange, and Geranium, refined as much as possible, were found to

be better tolerated; but they are very expensive.

The introduction of

EUCALYPTUS GLOBULUS

had just been accomplished—as we have said before—by Dr. P. RAMEL. Recourse was had to Crystallizable Eucalyptol; but the pain and inflammation produced by the injections of this substance were so great that it was found necessary to dilute and tone it down without altering it, until it should become injectable.

Thus arose

THE QUESTION OF SOLVENTS.

Neither animal oils nor mineral oils are practicable; as they are either septic, or caustic, or liable to become rancid or to ferment. Mineral oils are, moreover, *not assimilable*. Vaseline, notwithstanding the inevitable accidents which follow its use, has been given the place of the vegetable oils in the classical formularies, and has thereby been wrongfully recommended to practitioners.

VEGETABLE OILS

should *alone* be used, and they should be *sterilized*. And here certain facts are presented to our notice, which cannot be theoretically explained, but which we dare not ignore if they are true.

Five years ago to-day, Dr. ROUSSEL introduced to the SOCIETY FOR PRACTICAL MEDICINE a young female tuberculosis patient—cured—on whose bony thorax he had for a long time, in a certain plastic intention, injected a feeble solution of eucalyptol in oil. The injected surfaces showed *a notable degree of fattening*. Several times he reproduced this sort of medical modelling in the cases of young women whose clavicular cavities were disagreeably deep and whose bosoms remained in a rudimentary state.

The success of this

TOPICAL FATTENING

led the experimentalist to consider as proven,

that *a vegetable oil may be directly transformed into animal fat*, of which a part fixes itself very near to the points where the injection is made, while another portion seems to co-operate toward the general alimentation of the body.

"My colleagues of the SOCIETY FOR PRACTICAL MEDICINE," adds ROUSSEL,—"*and its president, DUJARDIN-BEAUMETZ, who was then 'all for vaselin,'—smiled when I presented to them, for the third time, in August, 1889, the young woman Ville-mard;—no longer with a cavernous lung and bacilli, as upon the occasion of her first presentation, in July, 1886; nor even with a mere dry tuberculous bruit and infrequent expectorations without bacilli, as upon the second occasion, in March, 1888; but presenting this peculiarity that her thorax showed, on the left side, a very pretty shoulder and breast, modeled by the use of injections of oil, whereas the right side, which I had neglected, in order to form a point of comparison, had remained thin and childlike! This young woman was then posing as a model for the American artist CHAPLIN, for his pretty pictures of a woman reclining among flowers, with a corner of bare shoulder and breast exposed.*"

"I hope that my colleagues will be pleased to admit that there was something very real in this case; since they now know that Dr. DUJARDIN-BEAUMETZ,—since then converted to '*all oil*,'—as well as Prof. BOUCHARD, Dr. GIMBERT (of Cannes), Dr. BURLUREAUX, etc., new converts to

VEGETABLE-OIL INJECTIONS,

"are studying the process by which large quantities of oil, injected under the skin, can have alimentary and therapeutical value, and are seeking to find out the nature of the vital force which transforms these oils into animal fat.

"At the meeting of the THERAPEUTIC SOCIETY on November 23rd, 1891, Dr. DUJARDIN-BEAUMETZ said that he had not succeeded

"in finding the scientific explanation of this phenomenon, whose existence I had then merely announced to him. He, nevertheless, now, experimentally confirms the fact that, if the dose of injected oil is not too strong, the animal is seen to grow fatter; but if the dose is too great, the animal dies on account of the oil passing into the blood.

"I think that this latest discovery of the physician of COCHIN HOSPITAL will lead those who give to their patients injections in doses of 150 to 200 grammes, and over, of oil, creasoted or not, to restrain themselves and perhaps come back to the

MAXIMUM DOSES

"of from 40 to 50 grammes which I have indicated, before any accident happens."

—It will be seen that there is, throughout the above statement, a strong accent of conviction. Will this, too, be considered as "*charlatanism*"? Why should it be, since everyone may repeat these experiments? If the record is shown to be false, reject it; but, if true, how culpable we would be, to cry them down—*a priori!*

One word more, to prove that the medical press, here, is not always the last to run down the profession. There is in Paris a CONSULTING COMMITTEE ON PUBLIC HYGIENE. It lately received a petition which it considered seriously,—discussing it and instructing one of its members to report upon it. This petition asked for the creation of

AN ORDER OF PHYSICIANS,

similar to the ORDER OF BARRISTERS which has long existed. The committee refused to adopt the proposition "*because*"—it said—"of the different conditions under which the professions of medicine and law are practiced."

To which a specialist sheet, *L'Actualité Médicale*, caustically replies: "*This is vague and not very embarrassing! The real truth is, that an order of physicians would*

"necessitate the creation of by-laws; and
 "these by-laws would have to exclude all
 "the sellers and the sold; and, in this way,
 "it would be necessary to refuse admission
 "to Drs. X——, Y——, Z——, etc., who are,
 "'the very pink' of the medical body. And
 "this is why the professions of medicine
 "and law are practiced 'under different
 "conditions!'—Come, gentlemen! Have,
 "at least, the courage of your opinions!"

—You see, from this again, how professional authority is on the wane!

September, 1892.

There is a disease which it is difficult to avoid speaking-of, at the present hour, while Europe is debating under the constraint of an immoderate

CHOLEROPHOBIA.

Not that it is a question concerning what is found printed in all the lay journals, about the march of the epidemic and the essential characteristics of what is called exclusively Asiatic Cholera.

In Paris, the phenomenon which has been called *Choleric form diarrhœa* is very far from lessening. There is certainly, since the middle of August, an increase in the number of patients treated in the various Hospitals. This augmentation coincides with a recrudescence of the hot weather.

At Havre, meanwhile, imported cholera reigns by whatever name we may choose to call it, if only it is not designated *Autochthonic Cholera*. This last phrase serves admirably to disguise our ignorance of the differences which exist—or are alleged to exist—between these various *local* and *imported* epidemics. It is known that the disease was brought to Havre by a sailor from Hamburg; that some sixty cases declared themselves speedily in the town of Havre—with a mortality of one third daily; and that the French newspapers rivalled each other in thundering against the conduct of the Hamburg authorities, who, on the first appearance of the plague, had the insane

idea of pretending that the evil did not exist. It was necessary—it was there said—to take care, *before everything*, of the commercial interests of the city and of the port. The sad result, for Hamburg itself, is well known. Elsewhere, it has culminated in enormous injury to other towns, which but for that reprehensible conduct would not have suffered.

The feeling in *Paris* itself is *less* strongly condemnatory of the Hamburg citizens. There are a good many doctors here who *will not admit* the identification of the Cholera of Hamburg and of Havre with that of Paris. "It is impossible," the *Semaine Médicale* repeats, "to recognize any kind of analogy between these different cases. The course of the disease is not the same, and the epidemic manifests itself in no respect in the same manner. In short, the Parisian Cholera has never presented, and does not present, the character of great and sudden mortality observable at Hamburg; up to the present time it has only attacked persons in hygienic conditions more or less defective."

But the same medical organ is, perhaps, well advised and takes its precautions, when it adds: "It is unfortunately to be feared that in consequence of the nearness of the choleraic foci which we have indicated, the imported cholera *may be added* to the present epidemic of

AUTOCHTHONIC CHOLERA."

But all this has, more or less, been discussed *ad nauseam*; and we had better turn to the more exclusively *medical side* of the question, to which Dr. H. BARBIER has recently given all his attention, and which, I hope, will interest the practitioners of your country. The subject is, at the same time, one of public health and of

MICROBIOLOGY

and nothing is more attractive to-day than microbiology, notably that of all those affections which are variously termed

Asiatic Cholera, Cholera nostras, Cholérine, Choleriform diarrhœa. The intestine is, in all these different cases, infected by microbes to which are attributed *Cholerigenic* properties ; and here offers an excellent occasion to make their enumeration, in order to give an idea of what is still called, in certain circles, the *specificity of microbes*. There are then, in brief :

1st,—the Bacillus of Dr. KOCH—the *Comma-Bacillus*—that he discovered at the time of the last Egyptian epidemic, and the existence of which he has recently confirmed in a number of cases at Hamburg ; 2nd,—the Bacillus which EMMERICH observed in 1884, during the epidemic at Naples ; 3d, the Bacillus of Drs. FINKLER and PRIOR ; 4th, the Bacillus which Drs. GILBERT and GIRODE observed in several cases of Cholera alleged to be *nostras* and which, in the opinion of many practitioners, is no other than the *Bacterium Coli commune*. What a number of bacilli so far ! And you may expect to see still others described in all affections in which a fluid of the animal economy is found to be profoundly altered.

Alas that we are no longer in the time when according to the believers, there was

ONLY ONE SPECIFIC BACILLUS

of cholera, that is to say the Comma-Bacillus ! it is so simple ! and *this Bacillus* was in itself characterized by a simplicity of movement which rendered its rôle comprehensible and easily interpretable. It was *Anaërobic*, and that is all. Plunged in the intestinal liquids, it there found no free oxygen ; and if it wanted any, it was necessary that it prepared some for itself, by decomposing oxygenated compounds.

But where, to-day, are the *Aërobia* and the *Anaërobia*, which ought to account for the ætiological data in all the affections by which poor humanity is afflicted ? It may be said that *they have lived* ; and to-day, the Comma-Bacillus is declared to be at one and the same time

AËROBIC AND ANAËROBIC !

Drs. HUEPPA and WOOD expressed concisely the opinion that the Comma-Bacillus is much more sensitive to *acid* antiseptics than to others. On the other hand, it develops freely in alkaline media. It induces, in the animals subjected to the experiments, accidents similar to those of the Cholera of man. It is claimed that the poison is introduced in man with food and drink. It is even admitted that the air may be the vehicle conveying it into the digestive tube. It is this bacillus which may produce two liquid secretions, two dangerous toxins, often fatal ; —the one considered as a *Neucleine*, the other as a *Neucleo-Albuminine*. All this might have appeared sufficiently clear, if it had not been afterwards declared that this is the analogue of the diphtheritic poison. It proceeds, in fact, in the same manner ; that is to say without the intervention of the blood, *by direct conveyance* to the place of development.

It is known that

THE BACILLUS OF EMMERICH

observed at Naples in the intestines of cholera patients, is short and straight, not arched. The discoverer of this bacillus ascribed to it the production of Cholera, because, in administering a culture of this vegetable parasite to animals, he produced in them a fatal gastro-enteritis. Nevertheless, a great number of doctors refused to recognize it as a special pathological agent ; and NEISSER does not admit that it is causative in the morbid conditions observed, beyond producing a *secondary infection*.

When asked why

THE ARCHED BACILLUS

which has been recognized in a great number of cases of Cholera by Drs. FINKLER and PRIOR is not the Bacillus of KOCH, although it has the same outward appearance,—the discoverers say that it resists dessiccation better than does the Bacillus of KOCH. And this is claimed as a reason why the Bacillus of FINKLER and PRIOR is not specific of Cholera !

It must be admitted that this would be a very singular feature in medicine, especially if on the other hand it be admitted—as other observers maintain—that the *Bacillus* of KOCH resists dessiccation equally well; and that dessiccation impedes oxidation, which is the great destroyer of choleraic schizophytes; and that it may thus be considered *an excellent method of preserving* these schizophytes.

Moreover, Dr. TALAMON and others point out the striking analogies of the Comma-Bacillus of KOCH with that of the *Bacillus* of FINKLER, and ask themselves—not without reason—if it is not *always one and the same organism, slightly modified according to circumstances*.

HUEPPA is not the only *one who, recognizing the*

BACTERIUM COLI

in fæces of *infantile Cholera*, was tempted to give prominence to its cholerigenic properties. In three cases of Cholera considered as *nostras* and followed by death, GILBERT and GIRODE have discovered the *Bacterium Coli* in the fæces, *in the blood*, and in the cephalo-rachidian and pleuritic exudations. They made *pure cultures* of these *Bacteria Coli*; and the animals into which they were injected died with diarrhoeal accidents, similar to those which are produced by the ingestion of the cultures of the *Bacillus* of KOCH.

CHANTEMVESTRE, VIDAL, and LEGRIS have found, in Cholera patients, the *Bacterium Coli* in the intestines and in the bile. Therefore the *Bacterium Coli* is held to be choleraic. As TALAMON remarks, the frequency of this plant in the intestine and its extreme diffusibility being taken into view, it seems very probable that it has produced a

SECONDARY INFECTION.

It is probable that it plays a great part in producing infectious diarrhoeas, and especially those of children.

Is not the conclusion reasonable that *the Cholerigenic power* appears to be a property

common to a considerable number of schizophytes endowed with specific virulence—permanent or temporary?

It is known that HUEPPA had invoked the *Bacillus subtilis*. GILBERT has in one case observed a *liquefying Bacillus*. Apropos of this assertion, Professor HAYEM has cited the observation of a *Bacillus*, “thick and short,” which had produced “pseudo-tuberculous lesions in the supra-renal capsules and a terminal microbian generalization,—cause of choleraform accidents.”

—In the presence of such chaotic trash,—what becomes of the “specificity” of microbes, which *ought to simplify everything* and to result in unification, reducing all the facts of the pathology of Cholera to a quasi-mathematical precision?—No, it is an inextricable *muddle* in which the investigators, and would-be investigators together, have placed us!

THERAPY OF THE DAY.

CHOLERA TREATMENT.

Dr. MARIANO SEMMOLA, professor of materia medica and therapeutics at the UNIVERSITY OF NAPLES, Senator, member of the NAPLES ACADEMY OF MEDICINE and corresponding member of the ACADEMY OF MEDICINE at Paris, has been identified with the study of cholera for thirty years. He has during this period gone through seven epidemics of cholera in different countries, and was physician-in-chief of the CROIX-BLANCHE sanitary corps during the epidemic of 1884 at Naples, where he made as many as six thousand clinical observations. This long experience and the scientific standing of the eminent professor, give to his views concerning the matter under consideration a specially peculiar interest. Cholera, says he, has thus far been submitted, in a general way, to three kinds of treatment: *antiparasitic*, *symptomatic*, and *physiologic*. According to the professor's ideas, however, the antiparasitic treatment is not and never will be the abortive treatment for cholera,

because the best-known and most powerful parasitocides could never be introduced into the intestinal canal in such proportions as are necessary to destroy all the microbes, and still remain inoffensive to the patient. And even if this result were achieved, the death of the microbe would only constitute a small part of the treatment: for the most serious phenomena of cholera are incontestably due to a chemical principle which successively poisons the nervous centres and which is already forming in the intestine when the diarrhoea warns us that the attack of cholera has begun.

By the symptomatic treatment the physician endeavors to combat the symptoms of the disease as they arise, by administering certain medicamentous substances well-known at the present day.

This treatment, when wisely limited, without expecting too much of it, may give favorable results, under the one fundamental condition, that drugs be employed which are incapable of producing profound or unknown disturbances, and whose action is transient and not of a perturbing nature. But if the physician, seeing the persistency and the aggravation of the symptoms which he desires to combat at any price, should redouble the violence of his attack by the employment of substances of a perturbing action, he will obtain no other result than the aggravation of the state of the patient.

The physiologic treatment—by which is meant that treatment which, without disturbing the organism by powerful chemico-biological actions, strives simply to augment in every way the resistance of the system to the successive invasion of choleraic poisoning—still remains to be considered. The foundations of this treatment are as follows:—Absolute and rigorously enforced repose of the organs attacked,—that is to say, of the gastro-intestinal canal,—by means of complete fasting from the very moment the smallest manifestation of diarrhoea appears. This point must be insisted-

upon in dealing with one's patients, and they may be told without hesitation that it is the sheet-anchor of the treatment.

The same functional repose, that is absolute fasting, should also be enjoined upon patients when the favorable reaction sets in, if the diarrhoeal troubles have not ceased at least twenty-four hours before.

The author's personal experience, as well as that of the whole CROIX-BLANCHE sanitary corps, has proved that sometimes it is only necessary to administer five or six spoonfuls of bouillon, too soon, to again bring on the most serious choleraic symptoms. It has been observed that milk, in small doses, is the preferable form of food when it becomes necessary to recommence alimentation.

Next, the physiological powers must be appropriately excited by means of heat applied in the form of hot baths, given at 38° to 40° C [100.4 to 104°F] and repeated as occasion requires. The word "excited" is purposely used, as this is really the secret of the good results, of the almost prodigious results which may be obtained by means of the hot bath.

The favorable moment for the hot bath, according to the professor, is the first stage of the disease, that is to say, before the algid period has begun; for it is not merely a question of physically warming the chilled cutaneous surface, as was formerly believed, but of exciting the peripheral nervous net-work and, by reflex action, the nervous centre of the circulation, in order thus to produce a harmonious restoration of the functional relations between the cutaneous surface and the gastro-intestinal mucous membrane.

It is recommended to have recourse to the hot baths as soon as the patient, suffering with a slight diarrhoea, commences to feel a sensation of uneasiness in the epigastrium, with or without vomiting.

Prof. SEMMOLA says that he has seen hundreds of cases where the simple diarrhoea—which had been obstinate and persistent

for several days, and which, later-on, would no doubt have developed into a regular attack of cholera—suddenly disappeared after one or two hot baths followed by abundant perspiration.

In the stage of reaction the treatment should be of the simplest kind. If the reaction occurs slowly and without much fever, it is simply a question, according to the author, of hygienic and especially dietetic treatment. The return to alimentation ought to be made with the greatest prudence and rigorous care; it must never be forgotten that the smallest error in this respect may be fatal. If, on the contrary, the reaction occurs abruptly and with high fever, a treatment must be followed which is based on the gradual and methodical local application of cold compresses; and in some cases (when the temperature remains persistently above 40° C [104° F]), recourse must be had to the general application of cold, such as is practiced in certain infectious diseases.

WISDOM OF THE AUTHORS:

ABSTRACTED FROM RECENT MEDICAL WORKS.

* * *

THE MOST SUCCESSFUL TREATMENT OF HYPERTROPHY OF THE TONSILS.—DR. TH. GOUREAU.

Much has recently been written concerning the best treatment to be adopted in hypertrophy of the tonsils, and here, as elsewhere, opinions are much divided. All the processes may, in short, be referred to three principal methods: *painting*; *excision*; *the actual cautery*.

After carefully comparing the three methods, we may state that the preferable process is *Excision by means of Maisonneuve's Amygdalotome*. This instrument, which is in the hands of every practitioner, is certainly the one which gives most satisfaction with the least drawbacks. We do not say that it must always be employed: it is foolish to be absolute in practice. But

8 times out of 10, recourse must be had to amygdalotomy.

What are, then, the contra-indications?—1st,—certain anatomical conditions of the tonsils; 2nd,—the age of the subject. It may not be possible to seize the tonsil by the instrument; its too friable tissue being torn by the fourchette; or the pillars covering the tonsils, adherent to them, prevent them from being caught in the lunette. In the case of adults, amygdalotomy should be forbidden. The sole reason for this direction is the *possibility of fatal hæmorrhage*; for after infancy the tonsillary vessels are developed; their compression is difficult; their ligature impossible. The hæmorrhage often occurs in the form of venous exudation.

At what age does this contra-indication begin? The author replies: "*before puberty, amygdalotomy may be practiced; after,—never.*" Double amygdalotomy ought to be avoided; and it is necessary that the surgeon have in his instrument-case simple amygdalotomes of different sizes; for the tonsil ought to enter the lunette readily, but *it should not be loose in it*.

PROPHYLACTIC TREATMENT OF UMBILICAL ERYSIPELAS IN NEW-BORN CHILDREN.—DR. DALEAS.

If practitioners would always bear in mind the origin and ætiology of this disease,—which is sometimes very grave, but happily much rarer at present than formerly,—it would disappear almost completely from the nosological catalogue. In fact, the treatment should be pre-eminently *prophylactic*.

It cannot be too often repeated that in preventing the infection of the umbilical wound of the new-born with *streptococci* (or with their products?), we assuredly protect the infant from Umbilical Erysipelas. This disease originates in the umbilical wound. Its march is rapid, and its termination is almost always fatal. (It is supposed that

the streptococcus which in this case infects the economy, is identical with that which causes puerperal fever and erysipelas of the adult.

This vegetable parasite penetrates the lymphatics after passing through the umbilical wound. It is found abundantly in the lymphatics of the deep layer of subcutaneous cellular tissue; it is on the contrary rarely found in the derm.

Without stopping to advert to what has been said in the various obstetrical treatises concerning the ligature of the cord, we must say to practitioners that for the purpose of this ligature any thread sufficiently strong is good, provided it be aseptic. And in order to insure that it is so, it ought not, according to the author, be used until it has been soaked during at least an hour in a 5-per-cent solution of phenic acid. (We know that many accoucheurs refuse, nevertheless, to employ phenol.)

Two ligatures which are withdrawn successively from the solution just at the moment when they are to be employed, are applied, with an interval of about 2 centimetres [$\frac{3}{4}$ inch]. Between these two temporary ligatures the cord is divided. Then, when the infant has been well washed, a final ligature is applied. The accoucheur first raises the cord at the umbilical region by means of little tampons of absorbent cotton dipped in the aseptic solution. Then, taking thread steeped in the same solution, it is applied as a new ligature to the cord at about one centimetre [$\frac{3}{8}$ inch] below that which already existed, and the cord is then cut near the outer ligature. Then, without losing time, 2 square pieces of absorbent wadding, from 2 to 3 centimetres [$\frac{3}{4}$ – $1\frac{1}{4}$ inch] thick, and from 5 to 6 centimetres [2 – $2\frac{1}{2}$ inches] on each side, are taken up. Through the centre of one of them, a hole is forced through which the cord is passed. The latter is then covered with the second square. The cord thus rests between two layers of wadding, protected from all con-

tact with the *extérieur*. The whole is then bound down with a compress of fine linen, drawn moderately tight.

This is *asepsy by occlusion*. At the end of 3 or 6 days the cord is detached, and a rose-colored wound is observable, without any trace of blood or pus. The cord is thrown off without suppuration. This fact is far from the ancient opinion; viz., that the cord fell off by ulceration.

Now must be applied to the umbilical wound a tampon of absorbent wadding, one surface of which has been anointed with borated vaselin (1 : 30). The umbilicus should then be covered again with a square of wadding, and the whole should be maintained by a little bandage round the body. This dressing must be renewed each time after the baby has been bathed. The umbilical wound will be healed in from 6 to 10 days, and Peri-umbilical Erysipelas will never occur.

THERAPEUTIC PROPERTIES OF BICARBONATE OF SODA.—Dr. QUINQUAND.

A theory rather generally admitted by physicians is, that Bicarbonate of Soda is a liquefier of the blood; and it is indeed, to this property that the sometimes formidable accidents observed in patients who abuse the waters and the salts of Vichy and of certain other analogous minerals, are usually ascribed.

According to our author, Bicarbonate of Soda is, on the contrary, a *dehydrater of the blood*; it concentrates this fluid, and is in no respect a liquefier. This salt often augments, moreover, the number of blood-globules;—an augmentation partly relative in the sense that the concentration of the blood has just explained.

It is therefore but just to regard as a myth what the practitioners of the time of TROUSSEAU called the *alkaline cachexia*. Under the influence of the salt named there is always a diminution of the glucose of the blood. This is a general law; and this salt is, there-

fore, useful in diabetes mellitus. There is also a diminution of the carbonic acid of the blood, both venous and arterial. The proportion of oxygen in the arterial blood remains unchanged. As a general rule, the respiratory capacity does not vary. The urea in the blood *always increases*. The pulmonary exhalation of carbonic acid is increased. In the liver, the sugar either increases or does not vary. The glycogen is sometimes increased, sometimes lessened. While a merely moderate dose of Bicarbonate of Soda influences but little the urinary secretion, a strong dose increases it. The amount of phosphates eliminated is increased, the chlorides likewise.

The use of the Bicarbonate of Soda in phosphaturic and uræmic cases is therefore contra-indicated.—But whence come the accidents observed in the cases of those patients who abuse of this salt?

DIAGNOSIS OF DIABETES.—PRACTICAL DETERMINATION OF THE QUANTITY OF URINARY GLUCOSE.—Dr. DESNOS.

In practice, the process of BOUCHARDAT, slightly modified, is often employed. The excess, over 1000, of the aræometric weight of the urine, is multiplied by the constant factor 2, and thus is obtained the total weight, in grammes, of the substances dissolved in the urine. The urine is then fermented with a small quantity of yeast. When the fermentation has ceased, the density of the liquid is ascertained; and the multiplication, by 2, of the aræometric excess over 1000 is repeated. This number is subtracted from the former one, and the difference gives the empiric figure, in grammes, of the glucose contained in the urine.

For the same purpose DESNOS proposes the following formula:—Multiply by 2 the excess of the aræometric reading, over 1000; then multiply the product thus obtained by the number of litres of urine

voided in 24 hours, and subtract the fixed number 60 from the final result. This process, which is more summary than the first one, is considered as quite sufficiently exact for practical purposes.

DIABETES TREATMENT. — INFLUENCE OF CERTAIN MEDICINES AND OF REGIMEN.—Dr. QUINQUAND.

Whether Diabetes be spontaneous or artificial, oxygen always lessens the glycosuria. The arsenicals, and particularly Fowler's solution, lessen in a striking degree the quantity of sugar eliminated. Antipyrine does the same; it reduces the quantity of sugar sometimes even to the extent of three-fourths, and the fact has been demonstrated experimentally and chemically (G. SÉE).

This medicine may indeed be employed in order to establish a prognosis. If after treatment with Antipyrine we observe a marked diminution, or, indeed, almost a suppression, of sugar in the urine, this is a favorable indication. The prognosis, on the contrary, becomes grave if the quantity of sugar is not lessened. The efficacy of the treatment is not scientifically demonstrable; but the drug cannot readily be abused-of.

—In the case of a patient who had been eating daily 200 grammes of bread, the denial of farinaceæ caused the quantity of sugar to fall from 209 to 40 grammes, then to 9 and 4 grammes. Per contra, there was no serious modification in the proportion of sugar when the patient adopted no regimen, or an irregular one, including farinaceous food from time to time. The daily use of potatoes increases the glycosuria. Wine in doses a little above the average accustomed quantity also increases it.

Physical exercise produces a great improvement: the knowledge of this fact is not new; but the practitioner cannot too strongly insist upon it.

RATIONAL DIETETICS:

STUDIES FOR "MERCK'S BULLETIN."

FOOD VALUES.

VIII.

CHEMICAL DERIVATIVES OF MILK.

The next class of food-stuffs to be investigated consists of those derivatives of milk that have been developed as the result of chemical transformations effected in some of the constituents of the native fluid as taken from the mammary gland.

First it may be advisable, however, to stop and consider the composition of Mares' Milk—the fluid from which Koumys or Kefir was first made—and its possibilities, before attempting to study these chemical derivatives.

COMPOSITION OF MARES' MILK.

The composition of milk drawn from the mammary gland of the mare, as given by HARTIER, is as follows: Every 100 parts is composed of 82.32 of water; 4.70 of proteid substances; 2.70 of fat; 11.00 of milk-sugar; and 0.28 of mineral salts.

This analysis does not exactly correspond with the statements commonly recorded in works on physiology, which is that the milk of the mare and of the ass contains an abundance of sugar, but is poor in nitrogenous matter and fat. True, the fat is small in quantity; but the proportion of proteids in this analysis of mares' milk largely exceeds that of human and cows' milk;—the excessive amount of sugar—in part if not absolutely—compensating for the deficiency in the fatty elements.

From what we have previously learned regarding the point in the system at which the glucose and fat are primarily oxidized and utilized, it was found that in certain instances this excessive amount of sugar is of great advantage, while at other times it becomes equally detrimental to the animal economy.

In regulating the diet, both in health and

disease, all these chemical differences and the absolute requirements of the system at different times and under varying circumstances must be kept constantly in mind. Otherwise the selection of the diet may be wrongly effected; and to it the failure in the treatment of many diseases can be justly attributed.

When *the regulation of the diet* is correctly adjusted, Nature is thereby enabled to effect the most wonderful cures,—especially when aided by scientifically directed remedial agents.

AMOUNT OF MARES' MILK REQUIRED DAILY.

Starting with the above standard of composition for mares' milk,—it will require the daily ingestion of 2768 grammes (89 ounces) to secure the required 130 grammes (4.19 ounces) of proteids, which has been taken as the standard in all these calculations. This quantity of mares' milk will also supply the system with 2468 grammes (72.38 ounces) of water; 74 grammes (2.38 ounces) of fat; 304 grammes (11 ounces) of milk-sugar; and 6 grammes (0.22 ounce) of mineral salts. This small percentage of the mineral salts might necessitate the addition of some mineral matter if this sort of milk was to be used as an exclusive diet. Aside from this fact, the smaller quantity required as compared with other varieties of milk would in some instances be found most desirable.

OXYGEN USED.

Computing the number of oxygen units that are required to transmute the proximate elements of mares' milk, by the same rules that have been adopted in the previous estimates,—it is found that there are expended—in the complete conversion of the proteids, fats, and glucose in this 2768 grammes (89 ounces) into their final products for elimination—33,423 oxygen

units. This is between five and six thousand oxygen units *under the maximum oxygenating capacity* of the system.

This form of diet, however, requires more oxygen units than are expended upon an exclusive skimmed-milk or buttermilk diet; but the exclusive mares'-milk diet does not require nearly as many oxygen units as are expended when subsisting exclusively upon human or cows' milk. Therefore, somewhat more mares' milk can be ingested daily than the normal 2768 grammes (89 ounces)—and still without exceeding the oxygenating capacity of the animal economy. This would enable the system to attain a larger measure of constructive or reparative metabolism, without the risk of suboxidation.

AMOUNT OF WATER PRODUCED.

The total quantity of water generated by the chemical mutation of the proximate principles contained in this amount of the mares' milk is 10,733 H_2O units. This is less than was obtained when exclusively confined to human and cows' milk. But, as we have already found, the quantity of oxygen used is less; and, in keeping therewith, a smaller amount of water is produced.

AMOUNT OF CARBON DI-OXIDE PRODUCED.

Like the water, the carbon di-oxide evolved from the katabolism of mares' milk is less in quantity than from that of human or cows' milk. The number of carbon di-oxide units formed as the result of the complete oxidation of the 2768 grammes (89 ounces) of mares' milk is 13,064 units. The amount of water and carbon di-oxide is, however, in excess of what is generated when using skimmed milk or buttermilk. Viewed in this light, the mares' milk would stand in utility, as a heat-producer, midway between the human and cows' milk on the one side, and the skimmed and buttermilk upon the other. (See next paragraph below.)

HEAT AND ENERGY PRODUCED.

Applying the common rules for computing the amount of heat and energy produced

by the oxidation of 2768 grammes (89 ounces) of mares' milk,—it is found that 619,250 kilogramme-metres (4,479,035 foot-pounds) of mechanical energy are produced. This is considerably below what can be obtained by using the pure meat diet, or the human or cows' milk. It is also about 1,000,000 foot-pounds below the estimated expenditure of energy by the system as computed by McKENDRICK.

At the same time it should be remembered that the expenditure of oxygen is comparatively small; so that, proportionally, the result is fairly good, although not absolutely perfect.

GENERAL COMPOSITION OF CHEMICAL MILK-DERIVATIVES.

There is a general quantitative similarity in the proportions of proximate elements contained in all fermented milk-products. The absolute quantitative composition of all these chemical derivatives of milk must, however, vary somewhat with the different kinds of milk fermented. The samples analyzed from time to time, *of the same species*, will yield somewhat different results, for two reasons:

Firstly, because the composition of the milk from which samples of Kefir, Koumys, etc., are made, is constantly fluctuating.

Secondly, because the intensity of the fermentative process, and its resulting products, necessarily vary with time and with the changes in the surrounding temperature, with climatic and other influences.

By making several analyses and taking the mean of a number of samples and analyses, a fairly representative standard can be obtained,—one which exhibits the average value of the derivative, as ordinarily ingested.

HISTORY OF MILK-FERMENTATION.

In the July Number of MERCK'S BULLETIN for 1890, p. 80, this information is recorded:

“Kefir and Koumys are names applied to “a nutritious, dietetic, refreshing, and gently

“stimulating drink prepared by various
 “nomadic tribes, principally of Western and
 “Central Asia and of the Caucasus region;
 “which is produced by a peculiar lacto-
 “vinous fermentation of milk.

“Properly, the name KEFIR applies to the
 “fermented drink thus obtained *from Cows’*
 “*milk*, and the name KOUMYS to that ob-
 “tained *from Mares’ milk*, although,” at the
 present time, “the latter is most frequently
 “used for the former.”

For many hundred years, great mystery
 surrounded the nature of the ferment used
 by the Tartars, Kirgheez, Circassians, Bash-
 kirs, and other tribes, in preparing these
 milk-derivatives.

It was supposed that the fermentation was
 induced by common brewers’ or bakers’
 yeast; and imitations have been and are
 prepared in this manner.

But, in 1884, ED. KERN demonstrated that
 a peculiar, composite, organized, vegetable
 ferment was the native agent used in the
 Kefir fermentation as practiced by the abor-
 iginal tribes.

This “KEFIR FUNGUS” is composed of two
 essential parts,—the *Saccharomyces cere-*
visiæ and the *Dispora caucasica*.

After the fermentative process has been
 started in one lot of milk by this compound
 ferment, the latter is regained and thereupon
 transferred from one sample of milk to
 another, and thus carried along from year
 to year and from age to age.

THE SUBSTANCE PRIMARILY TRANSMUTED.

As the milk-sugar (or lactose) is that prox-
 imate element of milk, most easily attacked
 by fermentative agents generally, we find it
 is this element which is first acted-upon
 in the Kefir or Koumys fermentation like-
 wise.

This form of fermentation appears to have
 been first practiced with the milk drawn
 from the mammary gland of the *mare*. Since
 then, goats’ milk and that of other animals
 has been similarly fermented. At the present
 time in Europe and our country, cows’ milk

is the fluid mostly employed as a basis for
 the various chemical milk-derivatives found
 in the markets under different names,—
 such as Kefir, Koumys, Galazyme, Matzoon,
 etc.

At one time it was supposed that various
 kinds of ferments were properly to be em-
 ployed in the production of the differently-
 named chemical derivatives of milk. It
 appears, however, that—with the exception
 of common yeast, which has been used ten-
 tatively as a cheap substitute for the genuine
 Kefir ferment, but with poor results—the
 only known agent for starting the true pro-
 cess is the one above described as “Kefir
 Fungus.” Time and extraneous conditions
 may modify the ferment or its action, so that
 somewhat varied results can be obtained—
 perhaps at will.

COMPOSITION OF KOUMYS.

Koumys (made from mares’ milk), accord-
 ing to HARTIER’S analysis, contains in every
 100 parts 91.62 of water; 1.12 of proteid sub-
 stances; 1.20 of fat; 2.20 of saccharine ele-
 ments (lactose); 0.02 of mineral salts; 1.15
 of lactic acid; 0.78 of carbon di-oxide; and
 1.65 of alcohol.

According to the analysis, then, this form
 of milk-derivative is a very mild alcoholic
 beverage. It also contains a liberal amount
 of lactic acid and some carbon di-oxide;
 both of which, along with the alcohol, are
 not found in the merely *physical* milk-deriva-
 tives, as previously discussed in these
 studies.

SECONDARY CHEMICAL MUTATIONS.

The fermentation of the milk, in the pro-
 duction of Kefir or Koumys, not only trans-
 mutes the saccharine constituent of the milk
 into alcohol and carbon di-oxide; but simul-
 taneously forms lactic acid, by a second
 kind of fermentation. The development of
 this lactic acid—together with other causes,
 to be named later-on—again tends to change
 both the physical and chemical characters
 of the principal albuminous element in the
 milk: the substance named casein.

The common result of this secondary action upon the proteid element of the milk is, to transmute it into that form of protose called *Caseose*; which then may be finally transformed into a completely formed and diffusible peptone. The older the Koumys the more likely is its caseose, to be transformed into peptone, and the more bitter will be the complete product.

PHYSICAL CHANGES.

As a sequence of these chemical mutations effected in the saccharine and proteid elements of the milk, the physical characters of the resulting fluid—Koumys—are entirely different from those of the original fluid from which this derivative was made.

The alcoholic fermentation of the lactose generates a considerable quantity of carbon di-oxide. This surcharges the albuminous fluid with undissolved gas, which, together with the little particles of precipitated casein, converts the milk from a homogeneous, quiescent fluid into an effervescent, slightly curdy mixture, which froths and fumes as soon as the cork is removed from the bottle.

This change in the physical character causes this milk-derivative to reach the cavity of the stomach in the form of a light flocculent mixture, instead of the plain, fluid milk. By that *previous precipitation* of the casein, the formation of the tough and indigestible curds, frequently occurring in the stomach when plain milk is used, is entirely obviated.

DETAILS OF THESE MUTATIONS.

The presence of the alcohol and lactic acid, the secondary fermentation, the action of the *Dispora caucasica*, etc.; the changes in temperature, together with the extraneous water added, in the process—all together, aid in producing those transformations in the proteid molecules, above noted.

The alcohol, together with the lactic acid, tends first to precipitate, then to acidify or syntonize, the casein. When syntonized, it is further subjected to the action of the

special ferment (*Dispora caucasica*); which so markedly distinguishes the action of the TRUE KEFIR FUNGUS from that of mere yeast, in further transforming the proteid element into the *protose* and then into *peptone*. With time and a favorable temperature, the action may be continued until nearly all the proteid substance is transmuted into the peptone form.

PHYSIOLOGICAL EFFECTS OF THESE CHANGES.

Before the development of much peptone, the Koumys has a rather mildly agreeable although slightly tart taste; but, in measure as more of the proteid is transmuted and the percentage of the peptone increases, the Koumys becomes more and more bitter, until to many persons it becomes absolutely unpalatable and disgusting. A few palates—strange to say—prefer it when it has reached this bitter stage.

The described fine precipitation of the casein, the production of the protose and peptone, together with the aërated condition of the fluid, causes the Koumys to rest well upon the stomach; and often it acts therapeutically, in relieving gastric irritation. The crude form of precipitation of the casein in the stomach, by the hydrochloric acid, is as already noted, avoided.

Thus, all possible chance of irritation by hard and indigestible curds is prevented, and this is often all that is needed to obviate gastric irritability. For this reason alone, Koumys can often be used when cows' milk, as commonly sold to the consumer, cannot be tolerated.

SPECIAL ADVANTAGE OF PRE-DIGESTION OF THE PROTEID.

Further than these mechanical reasons, the partial digestion—before ingestion—of the proteid in the Koumys, into a diffusible peptone, largely *decreases the energy-tax imposed upon the digestive functions of the stomach and intestines* in their ordinary efforts to render the casein capable of absorption and of service to the animal organism;—thus, decreasing very much the amount of diges-

tive work to be accomplished by the stomach and intestines, and thereby enabling the system to secure a larger amount of nutritive material within a given time, with comparatively less tax upon the vital powers.

By this conservation of the digestive forces, an amount of energy (and of oxygen) is treasured-up within the system; by which saving of oxygen the proteids can again be more perfectly utilized after having gained access to the blood and lymphatic channels.

Consequently, it often happens that an increased and largely reparative nutritive action can thus be established, when all other kinds of food-stuffs have failed to bring-about the desired result.

IDIOSYNCRASIES.

To many persons, the Koumys is absolutely unpalatable, and even nauseating. Such individuals can never learn to like this kind of diet. If they are by force of argument induced to take Koumys, they always regard it in the light of medicine. When such a condition is encountered, it is worse than useless to insist upon the continued use of this food. On the other hand, cases are frequently met in which Koumys is found far more palatable than ordinary milk. When this is the fact, the Koumys always works to perfection.

AMOUNT OF KOUMYS REQUIRED DAILY.

The composition of Koumys (as made from mares' milk), given by HARTIER, necessitates the ingestion of 11,648 grammes (374.5 ounces) of that fluid, to secure the required 130 grammes (4.19 ounces) of proteid matter which are demanded by the system. This amount of Koumys will also furnish to the animal economy 139 grammes (4.49 ounces) of fat; 255 grammes (8.23 ounces) of milk-sugar; 0.32 gramme (1.04 ounces) of mineral salts; 134 grammes (4.30 ounces) of lactic acid; 84 grammes (2.71 ounces) of carbon di-oxide; and 191 grammes (6.71 ounces) of alcohol.

According to this composition, if enough

Koumys is ingested to secure the full quota of proteid matter, a considerable quantity of lactic acid and carbon di-oxide will be taken into the stomach with this.

The comparatively small amount of fat, and the large quantity of milk-sugar and its resulting products, are accounted-for by the original composition of the mares' milk.

The composition as here given for Koumys is widely different, however, from the chemical product made from cows' milk *and now sold* in the markets under the name of "Koumys."

SPECIFIC USES.

The small percentage of fat and the large quantity of milk-sugar is, as in the case of buttermilk, a reason for the great value of Koumys in certain forms of disease. The small percentage of fat conservates oxygen and stores it within the blood, to be utilized in the liver in oxidizing glucose and in perfecting the oxidation of the proteid elements. (This particular point was elaborated in the *September Number* of MERCK'S BULLETIN, pages 501-2, and need not be repeated here.)

While, when using the skimmed milk or buttermilk, it was many times found absolutely necessary to supply some extraneous alcohol to temporarily sustain body-heat and vital activity,—the Koumys, on the contrary, has the advantage of carrying its own alcohol; which, like glucose, is rapidly transmuted into carbon di-oxide and water, with a sudden yield of heat in the entero-hepatic circulation. It furnishes heat and energy first at the liver; and in some instances of incomplete oxidation it is of great advantage.

ORIGINAL KOUMYS AS AN ALCOHOLIC DRINK.

According to the percentage compositions here quoted, for Koumys made from mares' milk the amount of alcohol is large,—every one hundred ounces containing 1.65 ounces of alcohol;—and if enough Koumys were taken to furnish the required amount of proteid substance,

(which, however, is practically *impossible*) 6.17 ounces of alcohol would have to be therein ingested daily.

This makes *the original Koumys* quite a pronounced alcoholic beverage; which fact corresponds with the historic accounts, to wit, that it was made by the aborigines for serving the purposes of an alcoholic beverage.

OXYGEN USED.

Computing the expenditure of oxygen according to the common rule adopted in this series of estimates,—it is found that the number of oxygen units required to completely transmute the proximate principles in the 11,648 grammes (374.5 ounces) of Koumys is slightly in excess of the maximum standard of 40,000; for 43,873 such units are required for the complete katabolic transformation of this quantity of Koumys as made from mares' milk. This circumstance makes this original Koumys much less available, as a special diet in states of suboxidation and disease, than the modern Kefir, as made from cows' milk.

An interesting point worthy of note is, that the amount of nitrogenous *excretory elements* derived from Koumys remains at the normal measure.

H₂O AND CO₂ PRODUCED.

It is also to be noted that, while the production of urea and uric acid, etc., remains normal, there is a large amount of water and carbon di-oxide produced.

The amount of water produced is represented by 16,517 units, and the quantity of carbon di-oxide by 14,364 units. This is by far the largest yield of water and carbon di-oxide obtained from any food-stuff thus far computed, with the exception of the purely vegetable diet composed of beans. But, with *that*, the quantity of the nitrogenous elements was doubled, so that the Koumys actually leads the pure bean-diet, *proportionally* considered, in water and carbon-di-oxide production.

HEAT AND ENERGY EVOLVED.

Estimating the heat and mechanical energy developed in the same manner as with the other food-stuffs so far investigated,—it is found that the proximate principles contained in the 11,648 grammes (374.5 ounces) of Koumys are capable of generating 857,571 kilogramme-metres (6,202,811 foot-pounds) of mechanical energy, or its equivalent.

Taking 800,000 kilogramme-metres (5,800,000 foot-pounds) as the maximum expenditure of mechanical energy by the system per day, it at once becomes apparent that a food-stuff has here been found that theoretically fills the bill. In fact, a little more heat and energy is produced than McKENDRICK's estimate calls-for, as being necessary in perfect health.

There is, however, at once a practical objection to the possibility of obtaining this result in full. There are few stomachs, if any, that could regularly consume 11,648 grammes (374.5 ounces) of Koumys daily,—no matter how strongly they might desire to succeed!

BEECH-TAR CREASOTE has been highly lauded in *gonorrhœa*; it is used in 1% solution in hamamelis decoction, with a slight addition of boric acid.

CREOLIN, in 3-5% solution in linseed oil, applied three or four times daily, is prescribed with good results by Dr. DURR in *pruritus vulvæ*.

BUCHAN, in his *Domestic Medicine*, which was translated into French in 1789 by DUPLANIL, remarks that, in virtue of the principle "*Contraria contrariis*," JAUNDICE originating in some depressing moral cause, may be cured by an *exhilarating treatment*. He therefore recommends amusements—dancing, laughing, singing and everything that tends "to promote the circulation," and "cheer the spirits."

CLINICAL PAPERS

ON LIVE TOPICS.

THE RELATIONS OF PELVIC DISEASE TO PSYCHICAL DISTURBANCES IN WOMEN.

By GEORGE H. ROHÉ, M.D., Catonsville, Md.

[Abstract of a paper read before the AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNÆCOLOGISTS; Fifth Annual Meeting, at St. Louis, Mo., September 20-23, 1892.]

Bodily conditions not infrequently influence mental states. Thus, a torpid condition of the intestines, Bright's disease, putrefactive processes in the intestinal canal, etc., might give rise to melancholia and other disorders of the mental functions. It is not irrational to suppose, likewise, that diseases of the female sexual apparatus would have a not inconsiderable influence in the production or perpetuation of mental disorders. As a contribution to the knowledge of the subject, permit me to submit the following brief report:

In a hospital containing 200 insane women, 35 were subjected to vaginal examination, and 26 found with evidences of pelvic diseases. In 18 of these the uterine appendages were removed,—sixteen of the patients recovering from the operation, while two died. Of the 16 that recovered, three have been discharged from the hospital completely restored, both physically and mentally. In 10, considerable improvement followed the operation, in both the physical and the mental condition; and in 3 the operation was of too recent a date to allow any definite expression of opinion.

The mental disorder present in the 18 cases was melancholia in 6, simple mania in 1, puerperal mania in 4, hysterical mania in 1, periodic mania in 2, hystero-epilepsy with mania in 1, and epilepsy with mania in 3.

—The facts recorded demonstrate: first, that there is a fruitful field for gynæcological work among insane women; second, that this work is as practicable and can be pursued with as much success in an insane hospital as elsewhere; and third, that the

results obtained not only encourage us to continue in the work, but require us, in the name of science and humanity, to give to an insane woman the same chance of relief from disease of the ovaries and uterus that a sane woman has.

PELVIC HÆMATOCELE.

By THOMAS MORE MADDEN, M.D., F.R.C.S. Ed.

Amongst the obscure forms of disease that have come under observation in the gynæcological wards of the MATER MISERICORDIÆ HOSPITAL during the last seventeen years, none have probably given rise to greater trouble in diagnosis or treatment than pelvic hæmatocele. In the larger number of such instances the patient, when sent to the hospital, was supposed to be suffering from a peri-uterine phlegmon, or from some tubal or other disorder. Moreover, as an examiner, I have noticed, even amongst otherwise well-informed students, the prevalence of very erroneous views with regard to the pathology, symptoms, and method of dealing with this condition. Hence a brief recapitulation of the most important points connected with the subject, as established by Mr. TAIT and others, whose views are borne out by my own experience, may be not altogether useless in obviating a repetition of errors, into which I have myself fallen in former days, and from which, as I have had sufficient proof, some other practitioners are not yet altogether exempt.

In discussing questions of this kind, it is, I think, always well in the first place to define the condition which we are about to consider; and probably no better definition of the term pelvic hæmatocele can be given than “a circumscribed collection of blood effusion wholly or partially situated within the pelvic cavity, either in its peritoneal or in its cellular structures.” In the first, or

intra-peritoneal, form of hæmatocele, the effusion, as a rule, results from rupture of an ectopic gestation; while in the second, or extra-peritoneal, class of cases, although it may also be due to a similar cause, the source of the hæmatoma is most frequently traceable to menstrual abnormalities.

Of these two distinct classes of pelvic hæmatocele the intra-peritoneal form is obviously, from its anatomical situation, as well as from its general cause, by far the more serious in its consequences, and must, therefore, in the first instance be here noticed.

INTRA-PERITONEAL HÆMATOCELE.

For our present knowledge of the pathology and treatment of this condition we are chiefly indebted to Mr. LAWSON TAIT, by whom it has been clearly established that such cases, as a rule, are dependent on the rupture of tubal gestations, and may then be successfully treated by timely resort to intra-peritoneal surgery. On the former point, as the result of his exceptionally large experience, Mr. TAIT states that he has "never seen an intra-peritoneal hæmatocele that was not due to a ruptured tubal pregnancy; and very many cases of extra-peritoneal hæmatocele (effusions of blood into the broad ligaments) have undoubtedly been tubal pregnancies which have ruptured between the peritoneal folds of that important structure."(*) The same view has been corroborated, amongst other recent writers, by Dr. AUVARD of Paris(†), who says that nineteen out of twenty of these cases are consequent on ectopic gestation. As, however, the consideration of extra-uterine pregnancy does not come within the limits of a non-obstetric topic, it will be here referred to only in so far as it bears directly on the subject of intra-peritoneal hæmatocele.

Of the several forms of ectopic gestation—namely, ovarian, abdominal, interstitial, and tubal—enumerated by some authorities as possible causes of hæmatocele, the last-

mentioned alone calls for serious consideration in this connection, inasmuch as the facts recorded by TAIT leave no room for doubt that the seat of the ectopic gestation is almost invariably tubal in such cases:—"I have," he says, "now been concerned directly or indirectly in the *post-mortem* examinations of 26 women who have died from hæmorrhage into the peritoneum (intra-peritoneal hæmatocele) from ruptured ectopic gestation. I have had to operate 40 times for the same cause, and I have witnessed about 10 similar operations by other surgeons, making in all the unique experience of 76 cases. In every one of these the seat of pregnancy was ascertained to be without doubt the Fallopian tube, and in only one was the seat of pregnancy in that part of the tube embraced by the uterine tissue."

In all cases of intra-peritoneal hæmatocele resulting from extra-uterine pregnancy, the rupture of the gestation cyst occurs during the early development of the misplaced embryo, most generally during the first and second months, and hence, as a rule, before the existence of pregnancy—or still less its abnormal situation—has been recognized. At a later period both become evident, and the rupture then of the ectopic gestation cyst leads, not to hæmatocele, but to immediate death from shock and hæmorrhage, unless that event be averted by timely and successful surgical interposition. The circumstances calling for this, and the method by which it may be accomplished, do not, however, come within the scope of the present paper, in which we have only to deal with those less immediately serious hæmorrhagic effusions consequent on rupture of such gestation cysts in their earlier stages and resulting in hæmatocele.

By various writers, besides ectopic gestation, many other sources of intra-peritoneal hæmatoma have been described, including, *inter alia*, direct hæmorrhagic exudations from the peritoneum, or from the ovaries and Fallopian tubes, whether consequent on

(*) LAWSON TAIT. Lectures on Ectopic Gestation and Pelvic Hæmatocele. P. 25.

(†) AUVARD. Traité Pratique de Gynécologie. Paris. 1892.

the bleeder-diathesis, or on local hyperæmia, or congestive diseases of these structures. Traumatic cases of this kind following intra-peritoneal operations or injuries may also be met-with, as well as others ascribable to a varicose condition of the utero-ovarian veins or else to cystic or malignant disease and other structural lesions in the ovary—such as active congestion or apoplexy therein, leading to extravasations of blood from the engorged vessels. Most of these conditions, however, may be included in the long list of circumstances that were formerly, but are now no longer generally, regarded as frequent causes of the disease under consideration.

The same observation may be applied to the alleged influence which has been ascribed to rupture of a Graafian vesicle elsewhere than into the Fallopian tube, in reference to which Dr. GRAILY-HEWITT says:—"If a Graafian follicle does not rupture, as it should, into the Fallopian tube, hæmorrhage takes place within it; it enlarges from continuous bleeding and ruptures. Should the bleeding be profuse an intra-peritoneal hæmatocele would be produced." The possibility of that result is unquestionable, but its probability is quite another matter, and is opposed to the teachings of recent authorities, by whom it has been shown that ovulation and menstruation are not always and necessarily coincident—the former taking place intra-menstrually as well as at the catamenial periods, at which alone the fimbriated extremities of the tube being applied to the ovary the matured ovisac ruptures into and is transmitted through that duct, whilst at other times when the ovisac ruptures the ovum escapes into and perishes within the peritoneal cavity. If, therefore, the latter event is to be regarded as a physiological occurrence, it can hardly at the same time be considered likely, as was supposed by SCHROEDER and GRAILY-HEWITT, to lead to the

grave pathological condition we are now discussing.

SYMPTOMS.

In these instances it commonly happens that the first symptoms calling attention to an ectopic gestation are those indicating rupture of the tube, whence intra-peritoneal hæmatocele originates as a rule. This occurrence is denoted by an acute attack of cramp-like spasms in the lower abdomen, accompanied by rigors and fixed localized pain in the situation of the ruptured gestation cyst, and immediately followed by faintness, rapid, thready pulse, pallor of surface, coldness of extremities, jactitation, and other evidences of collapse from loss of blood. After a while, if the immediate hæmorrhage be not such as will prove speedily fatal, the effusion is temporarily checked by clotting and shrinkage of the ruptured vessels, and reaction is gradually established, and may be maintained for some hours or days. This respite is, however, generally a very brief one in these cases, as eventually, and probably consequently, on the first attempt at active motion, the hæmorrhage and other symptoms return in an aggravated degree. The abdomen is now found tender on touch, as well as distended by a fluctuating tumefaction, the extent and character of which is dependent on the amount and situation of the sanguineous effusion in each case. Generally speaking, however, the tumor thus occasioned is not only in the lower portion of the abdominal cavity—*i.e.*, in the iliac and hypogastric regions—but also presses down into the retro-uterine *cul-de-sac* of the vaginal vault, the convexity of which is thus bulged in, and through which on local examination the soft, fluctuating and somewhat ill-defined outline of the hæmatocele may be recognized.

TREATMENT.

It is needless to occupy time by reference to those wholly ineffectual measures—such as styptics, ergot, opium, iced-water injec-

tions, etc.—on which, until within the past few years, practitioners were perforce content to rely during the interval between the intra-peritoneal rupture of an ectopic gestation and the then generally inevitable death of the patient in these cases. That period of surgical darkness has now passed away, and by the light of modern teaching we have at last come to recognize the simple fact that the successful treatment of an intra-peritoneal hæmatocele can be realized only by the timely removal of its cause. The means by which that object is accomplishable may be summed up in very few words—viz., immediate recourse to abdominal section for the purpose of ligation of the source of hæmorrhage, and removal of the tubal gestation cyst, followed by thorough cleansing away of all foci of sepsis in the peritoneal cavity. Briefly as this only rational method of dealing with such cases may be thus recapitulated, that idea was only accomplished after many years from the time of its suggestion by BURNS, of Glasgow, in 1814, and again by BLUNDEL, in 1830, down to its successful realization by TAIT in 1883. It would, however, be needless here to refer further to the operative treatment of ectopic gestation, the details of which may be found either in TAIT's writings or in any reliable recent text-book of obstetric surgery.

EXTRA-PERITONEAL HÆMATOCELE.

We have next to consider briefly that less serious, but more frequent, class of pelvic hæmatocele in which the effusion is situated in the broad ligament or connective structure adjoining the uterus, into which an early tubal gestation may rupture as well as into the peritoneum. The symptoms of the tubal accident will be of a similar character in both instances, although less acute in the sub-peritoneal or broad-ligament variety, the effusion from which is comparatively limited and most likely to result in the ordinary chronic form of pelvic hæmatocele, the treatment of which, as a rule, may be better

trusted to nature than art. In the larger number of cases, however, extra-peritoneal hæmatocele results from some menstrual derangement, such, for instance, as the sudden suppression of normal menstruation or of menorrhagia by cold or other causes, or else from obstructive amenorrhœa and dysmenorrhœa due to cervical stenosis, by one or other of which the free discharge of the catamenial fluid, *per vias naturales*, may be arrested, impeded, or rendered difficult. Still more likely is the occurrence of intra-pelvic sanguineous effusion from structural abnormalities—viz., deficiency or occlusion, congenital or acquired, of any portion of the utero-vulval passage, leading, primarily, to hæmatometra, or accumulation of pent-up menstrual fluid in the uterine cavity, and, secondly, to its escape thence through the Fallopian tubes into the pelvic connective tissue. In other instances the starting-point of such pelvic hæmatocèles is distinctly tubal, the effusion being directly poured out from the vessels in the oviduct and so finding its way through the abnormally distended fibrated extremities.

The immediate exciting causes and consequent symptoms of extra-peritoneal pelvic blood tumors must next be alluded-to, and in so doing we may avail ourselves of M'CLINTOCK's clinical observations on this subject, to the accuracy of which, when his pupil, I was myself an eye-witness, and which have been again and again re-iterated without acknowledgment by some subsequent writers. Of the exciting causes thus referred-to, the most important are—sudden suppression of the catamenial discharge; violent bodily efforts, or intense mental emotion; over-fatigue; excessive or rude coition, or sexual congress at the menstrual period; external injuries to the abdomen; premature exertion after miscarriage; violent straining,—all of which appear to have acted as exciting causes of the hæmatocele in some instances. Physiology teaches us, and experience abundantly confirms it, that the

menstrual epoch is the time at which the extravasation is most easily produced; and that an exciting cause, which would at any other time prove harmless, may now provoke it.

The leading

SYMPTOMS

which present themselves after the occurrence of this accident are:—hypogastric pain and tenderness with febrile action, succeeding to menstrual derangement, sometimes amenorrhœa, but more frequently menorrhagia preceded, perhaps, by a temporary suppression of the menstrual discharge. A tumor suddenly develops itself in the hypogastric or iliac region, or behind and partly below the neck of the uterus. At first this tumor is soft and fluctuating, but at a later period has more firmness. Tenesmus and irritability of the bladder are frequently present also. The character and intensity of the symptoms will mainly depend upon the mode of inception of the disease; and in the extra-peritoneal form of pelvic hæmatocele due to menstrual causes, now under consideration, these symptoms, as a rule, develop very gradually, and are often so obscure in their inception and subsequent course as to give rise to much practical difficulty in their differentiation from other pathological conditions in the same situation, and, above all, in their diagnosis from peri-uterine phlegmon or pelvic abscess.

The size and position of the blood-tumor in cases of extra-peritoneal hæmatocele must, as has been observed with reference to the intra-peritoneal form of effusion, depend mainly on the quantity of blood extravasated. Superiorly a large hæmatocele may be recognizable in either the iliac region or above the pubes. Inferiorly the tumor presses on the vagina and rectum. As the result of pressure on the vagina, this canal is encroached-upon, and a prominence is formed on its upper and posterior part, offering some hindrance to our reaching the os uteri with

the finger. The cervix is displaced forwards and against the symphysis pubis or to either side.

The existence of this tumor, as well as its size and situation, can be readily determined on a properly conducted conjoint or bimanual examination by the rectum and vagina and above the pubes, though whether its contents be sanguineous, serous, or purulent, cannot definitely be thus settled; and on this point, to a large extent, our conclusions must rest on the history and general symptoms of the case. The rapidity of its occurrence will constitute a strong ground for supposing the tumor to be a hæmatocele. Another important character belonging to the hæmatomic tumor is that, as pointed out by M'CLINTOCK, "it presents a succession of changes in its density, and, consequently, in the sensation which it communicates to the touch. Soon after the effusion has taken place, there is a more distinct sense of fluctuation in it than at any subsequent period. Some days later this is replaced by a doughy feel, and still later the tumor has an increased density, becomes hard in some particular spots, and fluid in the parts adjoining, owing to the separation of the coagulum into solid and serous portions." (*)

TREATMENT.

In no respect is the contrast between intra-and extra-peritoneal blood effusions, or pelvic hæmatocèles, more striking than in the very different methods of treatment required by the two classes of cases. In the former, prompt, bold, and skilfull operative interference by abdominal section is imperative. In the latter, as a general rule, and under ordinary circumstances, such measures are wholly uncalled-for. In considering the treatment of this condition its two chief probable causes must be borne in view—namely, first, ectopic gestation rupturing into the broad ligament; and sec-

(*) M'CLINTOCK. Clinical Memoirs on Diseases Peculiar to Women; p. 254.

ondly, obstructed menstruation. Even in the former class of cases, however, the necessity for active surgical interference comparatively seldom arises. "In such instances," as TAIT says, "in the act of rupture the ovum is usually destroyed. The case then resolves itself into one of simple broad-ligament hæmatocele, which is to be left severely alone; it will be absorbed, but the convalescence will be long. These cases should not be molested. Many a man has bitterly regretted having tapped them, because by lessening the pressure the hæmostatic effect of the pressure is lessened and the cyst will refill, and the woman will die as surely from loss of blood as if the hæmorrhage had taken place into the peritoneum. The cases that go wrong are those that are injudiciously interfered-with. If the blood is absorbed, then there is an end of the matter. Sometimes, however—perhaps 1 in 10 of the cases—the ovum is not killed, the hæmorrhage being smaller; it then goes on developing into a series of conditions. These, however, in the present connection need not be further referred-to.' In the second class of extra-peritoneal hæmatocele—viz., that in which the origin of the effusion is menstrual—its early symptoms are, as a rule, so ill-defined and obscure that the case has generally passed into the chronic stage before its nature is recognized. Hence the directions laid down in various text-books for arresting the hæmorrhagic effusion—such as bladders of ice over the pubes and abdomen, iced-water injections into the vagina and rectum, absolute rest, gallic acid, ergot, opium, etc.—being seldom available, and probably utterly useless, need not be here further alluded-to. When the disease actually comes under observation—viz., when active effusion has ceased and the resulting blood-tumor alone remains to be dealt-with—the obvious indications are, first, to promote its absorption, and at the same time to maintain and improve the constitutional condition of the patient, and thus, as far as

possible, diminish the probability of any pyogenic changes in the blood collection; and secondly, to obviate the local complications or pressure-troubles likely to be occasioned by its presence.

For the first purpose we must trust mainly to the *vis medicatrix naturæ* and to time, as I know of no remedy by which this object can be secured. At the same time, I may observe that I think I have not infrequently found the absorption of a hæmatocele apparently accelerated by the combination of a grain of bichloride of mercury with forty grains of iodide of potassium in three or four ounces of tincture of bark, of which mixture teaspoonful doses in water are generally prescribed to be taken two or three times a day in the cases of this kind treated in my wards. If the tumor be not absorbed, however, within a short time it almost invariably creates irritation or inflammatory action in the adjacent organs, and sooner or later becomes itself the seat of suppurative changes (giving rise to constitutional disturbance or possibly to septicæmia), being then converted into a sanguino-purulent collection, which, following the course of a pelvic abscess resulting from peri-uterine phlegmon, may ultimately discharge itself either into the vagina or into the rectum or bladder.

In those instances of sub-peritoneal hæmatocele in which operative treatment is necessitated by exceptional urgency of symptoms, that treatment may be more effectively, and probably more safely, carried out by abdominal section than by the older method of vaginal incision or puncture with the aspirator, over which properly-conducted and aseptic laparotomy operations afford greater facility in dealing with the tubal or other cause of the hæmatomic effusion, as well as in effecting the complete evacuation of the hæmatocele with less liability to subsequent sepsis.

HEMATEMESIS OF ANÆMIC YOUNG WOMEN.

By HENRY HANDFORD, M.D., M.R.C.P. LOND.

[Read at the Annual Meeting of the BRITISH MEDICAL ASSOCIATION.]

While the statistics of gastric ulcer obtained from post-mortem records show the disease to be not very unequally divided between the two sexes, and while duodenal ulcer, which for practical purposes it is useless to divide from gastric ulcer, is more common in the male, hæmatemesis is far more frequent in young females, especially if we exclude those cases which are due to organic heart disease, to malignant disease, or to cirrhosis of the liver.

CAUSATION.

While far from denying the common occurrence of gastric ulcer in young women, and the favoring influences of anæmia, I am convinced that in numerous instances the hæmorrhage arises from ruptured capillaries or small venules, and that no ulcer worthy of the name exists. The rupture of these small vessels is favored by anæmia in several ways. Partly by malnutrition leading to fatty degeneration of the vessel-walls, partly by general rise of the vascular tension,—which has now been shown beyond dispute to be common in some forms of anæmia, and last, but not least, by some backward pressure in the gastric venous circulation from the dilatation of the right side of the heart, inevitable in all severe cases of anæmia.

TREATMENT.

In my experience it is the anæmia, the constipation, and the feeble heart which urgently require attention; and the successful treatment of these removes the malnutrition of the vessels, the high vascular tension, and the venous remora, which we have laid down as the three most important causes of the hæmatemesis of young women. It is, I think, easily possible to restrict the dietary too much in cases of hæmatemesis. But how are we to distinguish the cases where the blood is poured out from the surface of an ulcer from those where no visible ulcer

exists, though of course there must be a breach of continuity for hæmorrhage to arise? This is not in all cases possible. But the best guide to the dietetic treatment is the state of irritability of the stomach as indicated by pain and vomiting. Neither of these symptoms is a necessary consequence of gastric ulcer. They indicate either an inflamed ulcer or surrounding catarrh. If these two conditions are absent, a case of gastric ulcer may be treated safely and wisely on the same lines as one of hæmatemesis arising apart from ulcer. Hyperacidity, which so greatly favors the production or continuance of ulceration in the stomach, is generally indicated by pain coming on from half an hour to an hour or longer after food. It can be readily determined by testing the contents of the stomach removed by the stomach-tube.

If hyperacidity is properly met by the administration of alkalis, a moderate amount of light food in a fine state of division may safely be given, even in gastric ulcer. Rapid healing cannot be looked-for in the absence of abundant nutrition.

Ulcers of the stomach artificially produced in dogs cannot be prevented from healing so long as the dogs remain in good health. Where hæmatemesis is due to anæmia, and the anæmic dilatation of the right side of the heart leading to over-filling and congestion of the veins of the stomach, it is not necessary to give digitalis so long as the patient is kept strictly in bed; but so soon as the patient is allowed to get up, unless the tricuspid murmur and the dilatation of the right ventricle have disappeared during the prolonged period of rest and the treatment by iron and aperients, digitalis should certainly be added, and will prove of great service.

AN AXIOMATIC MAXIM it is, that in all matters in which progress is possible, the probability is always that "the majority" is wrong.—*Clin. Reporter.*

NEW REMEDIES,

AND NEW LIGHT ON OLD ONES.

ASAPROL;—FORMULAS FOR ITS ADMINISTRATION.

The physical, chemical, and general therapeutic properties of ASAPROL were described in the August number of the current volume of this journal. Now Dr. A. BOMPART (*Sem. Méd.*) publishes a number of formulas for the administration of this drug in various diseases. The first formula given is as follows:

Asaprol..... 3ss-i [2-4 gm.].
Syrup..... fl 3vi [30 "].
Distilled Anise-water..... fl 3i [30 "].

To be taken during twenty-four hours in teaspoonful doses, in tea, sweetened water, coffee, or beer.

ASAPROL may also be administered in cachets of 0.5 gramme [$7\frac{1}{2}$ grains] each (4 to 8 per day), or in 5% solution in distilled water (8 to 16 teaspoonfuls or 2 to 4 tablespoonfuls daily, in spiced tea); or even per rectum according to the following formula:

Asaprol..... gr. xxx-cv [2-7 gm.].
Sydenham's Laudanum..... 4 drops.
Egg Yolks..... No. i.
Bistort Decoction..... fl 3xxvii [100 gm.].

For one injection, to be preceded by a purgative enema.

The following formula is recommended for a gargle in infectious anginas:

Asaprol..... 1 part.
Mulberry Syrup..... 4 parts.
Infusion Blackberry Leaves..... 20 "

A plain 5% aqueous solution is also said to be very serviceable as a gargle.

According to the author, ASAPROL, being a calcium salt derived from alpha-mono-sulphonate of beta-naphthol, is incompatible with all the salts that precipitate lime, particularly with the soluble sulphates and sodium bi-carbonate; furthermore, it is an absolute incompatible of potassium iodide.

According to the observations of Drs. STACKLER and BOMPART, it is above all in acute polyarticular rheumatism that ASAPROL ap-

pears to give the best results; in this affection Dr. BOMPART says it is not inferior to sodium salicylate, over which it has even the advantage of acting more rapidly and in smaller dose; in fact, the normal daily dose per os of ASAPROL, in acute rheumatism, is stated to be 4 grammes [1 dr.], while that of sodium salicylate is generally fixed at 6-8 grammes [$1\frac{1}{2}$ -2 drs.]. This is the way Dr. BOMPART advises to administer ASAPROL in acute polyarticular rheumatism:—2 grammes [30 grains] are prescribed the first day, 3 grammes [45 grains] the second day, and 4 grammes [1 dr.] on the following days. The last-mentioned dose is maintained as long as there is pain and fever. When convalescence sets in, the ASAPROL is still continued for a number of days, but the dose is progressively diminished, at first to 2 grammes [30 grains], and then to 1 gramme [15 grains], remaining at the latter dose for a few days. In this manner relapses are avoided, it is held.

CHLORAL HYDRATE IN OSTEOMALACIA.

Starting with the hypothesis that osteomalacia is an infectious disease due to the presence of the microbe of nitrogenous fermentation, and resting, on the other hand, on the researches of SCHLÖSING, MÜNTZ, and WARINGTON, according to whom chloroform rapidly destroys the vitality of the nitrogenous ferment, Dr. M. PETRONE of Naples conceived the idea of treating a case of osteomalacia with CHLORAL HYDRATE which, as is known, gives off chloroform when in the presence of the alkaline fluids of the body.

The patient was a woman of fifty. The trunk was a shapeless mass; the vertebral column was deflected, twisted, and arched forward. The woman's height was reduced to 1.3 metres [4 ft. 3 in.], while before the

disease it measured 1.57 metres [5 ft. 2 in.]. The abdomen was very prominent, and there was a large hernia of the linea alba. The pelvis offered the characteristic deformities of osteomalacia. The bones of the face and cranium presented nothing abnormal. The patient experienced continuous violent spontaneous pains in the bones, increasing with pressure. Walking and even the upright posture were impossible; the slightest movement to change the position in bed provoked terrible pains. Besides all this, the patient was tormented by a very annoying cough occurring in paroxysms, as well as by an incessant hiccough. The urine contained neither albumin nor sugar, but traces of propeptone and a notable quantity of nitrous acid.

Dr. PETRONE instituted the treatment with CHLORAL HYDRATE, in doses of 2 grammes [30 grains] a day, in solution. In three days, it is reported, the pains had considerably diminished, and in the urine the propeptones had completely disappeared and there was a notable diminution of the nitrous acid. On the fifth day of the treatment the urine had become normal. Toward the end of the first week the patient could get up, dress herself all alone, and make a few steps without any support. The spontaneous pains had almost completely disappeared, the hiccough had vanished, and the annoying cough was improved. At the end of a fortnight, the patient could be considered as cured; still the treatment was continued for a week longer, making in all three weeks of medication.

At the date of this report, there was no longer, it is stated, the slightest osseous pain, either spontaneous or provokable by pressure; the patient could walk, go up and down stairs, attend to her domestic duties, and freely and without pain execute all the movements which her osseous deformities permitted of making. The cure appeared to be complete, and ascribable to the CHLORAL—that is to say, to the chloroform set free

by this medicament in the organism. The author even considers the several recorded cures of osteomalacia after ovarian castration, due to the chloroform used for the production of the anæsthesia in the operation.

DERMATOL IN SURGERY AND DERMATOLOGY.

At a meeting of the Spanish Medico-Chirurgical Academy, Dr. AZUA (*Rev. de Med. et Chir. Pract.*), gave an account of his experience with DERMATOL (Bismuth sub-gallate) in surgical practice. Even when employed in large quantity, it did no harm. Applied to bloody surfaces, it dried them in a wonderful manner; it stimulated granulations, and was found to be particularly useful in skin effections characterized by much discharge—such as weeping eczema. When applied to wounds which had already begun to granulate, DERMATOL greatly stimulated the process; and similarly in the case of soft chancre—after the ulcers had been cleansed with antiseptic lotions, DERMATOL hastened the repair, and brought about rapid and thorough healing.

In diseases of the skin, Dr. AZUA thinks that DERMATOL with its drying and astringent properties, its absolute harmlessness, and the ease with which it can be used, may advantageously replace starch powder, zinc oxide, and a number of other dermics.

EUCALYPTOL BY INHALATION IN PULMONARY PHTHISIS.

Dr. MARCHE reports that he has for more than a year been treating all cases of pulmonary tuberculosis by means of inhalations of EUCALYPTOL, associated with creasote. Into a saucepan holding 1–2 litres [about 1–2 quarts] and filled with water, he pours per litre 1 or 2 spoonfuls of the following solution (*Méd. Mod.*):

Eucalyptol.....	20 parts.
Creasote (Beech-wood).....	8 “
Alcohol.....	72 “
The whole is made to boil over an	

ordinary oil-stove; when the saucepan is almost empty, it is refilled with water, the solution added, and the whole heated, as before. The patient should be placed in a pretty spacious but well-closed room, and remain there as long as possible.

This medication the author has continued uninterruptedly for several months without provoking the least sign of intolerance. It therefore appears worthy of a trial; but, of course, it is not destined to replace the hypodermic method of treating phthisis.

EUPHORIN AGAIN LAUDED AS AN ANTIPYRETIC, ANTIRHEUMATIC, ETC.

Dr. C. CURTIS, as the result of some 200 clinical experiments with EUPHORIN (Phenylethyl Urethane—see MERCK'S BULLETIN, Vol. IV, p. 7) and of bacteriological researches made in the Pharmacological Institute of the University of Rome, has come to the following conclusions (*Brit. Med. Journ.*):

1.—EUPHORIN is a powerful and safe antipyretic; it acts better when the fever is at its maximum and during the period of subsidence, than in the early stage. The action of the drug shows itself in from half an hour to two hours, and lasts from three to six or even ten hours.

2.—Defervescence is attended with a feeling of warmth and moderate sweating; when the temperature rises again the accompanying rigor is not severe.

3.—It does not cause any serious secondary effects; sometimes there is little cyanosis, but never collapse.

4.—EUPHORIN can be used in preference to any other antipyretic when a rapid and marked lowering of the temperature is required.

5.—It answers fairly well as an antipyretic in surgical fevers.

6.—It is a most potent antirheumatic; in acute rheumatism its action is certain; in the chronic forms its effect is also satisfac-

tory, and it usually succeeds in cases which have resisted all other remedies.

7.—In patients suffering from fever the dose is 1.2 grammes [18 grains], taken in from 4 to 5 portions. In febrile rheumatic affections, from 1–2 grammes [15–30 grains] should be given in the twenty-four hours; in chronic rheumatism, 1 gramme in 3 or 4 doses. On the average 1 gramme [15 grains] of EUPHORIN corresponds to 2 grammes [30 grains] of antipyrine.

8.—EUPHORIN has a sure analgesic action in neuralgia unless when it is due to a specific cause.

9.—EUPHORIN is a powerful antiseptic, its action being intermediate between that of carbolic acid and that of corrosive sublimate.

10.—It is one of the most effective disinfectants in thrush.

11.—In local applications it has advantages as compared with iodoform, iodole, aristol, etc.; it is more powerfully antiseptic and less desiccating than dermatol.

12.—EUPHORIN used locally in powder or in an ointment with vaselin or lanolin, is also an anodyne, and promotes the healing of wounds and ulcers. It gives excellent results in surgery and gynæcology, and in diseases of the skin and in syphilis.

HYDRASTININE IN EPILEPSY.

HYDRASTININE has long been known as a uterine vaso-constrictor, in which capacity it has been previously described in this journal; but it was not until the close of the last year that it was suggested as a remedy in the treatment of epilepsy, as well as of hydrophobia and strychnine-poisoning, by Dr. P. I. ARKHANGELSKY, who showed by experiments on animals that the alkaloid possessed powerful antispasmodic properties. More recently Dr. V. G. KISELEFF (*Vratch*) found that intravenous injections of HYDRASTININE in dogs and guinea-pigs, even in small doses (in dogs, 0.04 gramme [$\frac{2}{3}$ grain] per kilogramme

[2½ lbs. av.] of body-weight), distinctly diminished the excitability of the cerebral cortex, and moderated or even prevented epileptic paroxysms provoked by means of absinthe. These observations induced him to try HYDRASTININE in six cases of epilepsy in human beings. It was administered per os, in aqueous solution, in doses of 0.015–0.03 gramme [$\frac{1}{4}$ – $\frac{1}{2}$ grain], up to 0.06–0.12 gramme [1–2 grains] per day. In four of the patients, the attacks decreased both in frequency and in intensity, while in the remaining two, the treatment was not so efficient. It is claimed that no disagreeable accessory symptoms were observed.

IODIDES IN TYPHOID FEVER.

Dr. KLIETSCH of Wörth-on-the-Main, has been convinced, by his experience during an epidemic of typhoid fever which visited his town, of the remarkable efficacy of the iodides in that disease. He administered the following solution (*Sem. Méd.*) :

Potassium Iodide.....	3i-iss	[4-6 gm.].
Distilled Water.....	} of each, fl 3iiss	[10 “].
Distilled Peppermint		
Water.....		
Iodine.....	gr. viiss-xii	[0.5-0.8 “].

Eight to ten drops every two hours.

In almost all the cases, which numbered seventy-nine, where this treatment was employed, there was observed, after four to six days, a considerable diminution of the fever, which terminated in lyses after a period of eight to twelve days of progressive decline. As soon as this antithermic effect of the medication made itself felt, the general condition of the patients sensibly improved, in spite of the persistence of the fever for a certain time yet; the mind was no longer affected, the delirium disappeared, the tongue became clean and moist, the stools diminished in frequency, lost their “pea-soup” appearance, and after about a fortnight of treatment resumed their normal solid consistency. The complications so frequent with the other methods of treatment, did not survene

upon the iodic medication. Of the 79 patients treated with the iodides, only 2 died—one succumbed to a relapse, due to an error of diet and ending in perforation of the intestine; in the other, the enteric fever was complicated with meningitis, and the treatment could not be instituted until very late. But even taking into account these two cases, the mortality was but 2.5%,—certainly an extremely small one.

Thus, the author believes to see in the iodic treatment a new era of the therapy of typhoid fever, and considers the favorable effect of the iodides on enteric fever due to the microbicide action of the iodine liberated in the substance of the intestinal follicles and Peyer’s patches, the seats of predilection of the typhoid bacillus.

MENTHOL IN PULMONARY PHTHISIS.

In the address delivered at the opening of the Section of Pharmacology and Therapeutics at the recent annual meeting of the BRITISH MEDICAL ASSOCIATION, Dr. BROOKHOUSE (*Brit. Med. Journ.*), took occasion to speak of his favorable experience with MENTHOL in the treatment of pulmonary phthisis. His method consists simply in the introduction once or twice daily into the trachea of 1 dram of a 12% solution of MENTHOL in pure olive oil. This is effected by the aid of the laryngoscope, and a syringe with a curved tube; the tube is passed through the rima glottidis, about half an inch down the trachea. After a little practice and habituation, it is said the patient feels no inconvenience or discomfort whatever; on the contrary, there arises an agreeable sense of warmth in the chest.

One very early result mentioned is a marked diminution of the cough and expectoration; the night-sweats, if previously present, cease, the hectic temperatures become much less marked, the curves often go to the normal, and the patients gain in weight.—(Compare also, here anent,

"Menthol as a Local Anæsthetic, Stimulant, and Antiseptic in Laryngeal and Pulmonary Affections," in MERCK'S BULLETIN, Vol. IV, p. 115.)

POTASSIUM TELLURATE CONFIRMED AS AN ANTIHIDROTIC.

The antihidrotic properties of POTASSIUM TELLURATE described in a previous number of this journal (see MERCK'S BULLETIN, Vol. IV, p. 104) have recently been confirmed by Dr. POHORSKI (*Wien. Med. Pr.*) in 50 cases. The remedy was given in pill form, in doses of 1 centigramme [$\frac{1}{6}$ grain], gradually increased until 5 or 6 centigrammes [$\frac{3}{4}$ –1 grain] were being taken daily. In severe cases of phthisis the night-sweats ceased after a nocturnal dose of 2–3 centigrammes [$\frac{1}{3}$ – $\frac{1}{2}$ grain]. In general, the sweats that occurred at night required larger doses than those that appeared in the morning or during the day.

In the milder cases the sweats could be arrested more easily and more rapidly.

The action of the medicament usually manifested itself within three-quarters of an hour, and continued in some cases for 5 to 7 hours; after the lapse of this period perspiration again set in. In many instances the patients became accustomed to the remedy, so that the doses had to be increased steadily; in others, no such tolerance was established. In the majority of the cases no unfavorable effect was produced on the digestive tract from doses of from 1 to 4 centigrammes [$\frac{1}{6}$ – $\frac{2}{3}$ grain]; only in rare instances, after prolonged use of the POTASSIUM TELLURATE, in doses of 6 centigrammes [1 grain] did eructation, anorexia, and coated tongue appear, all these symptoms, however, rapidly disappearing upon discontinuing the medicament. The only drawback ascribed to the remedy is the garlicky odor which it imparts to the breath of the patients, who, however, strange to say, are not conscious of it.

The author also reports that he has succeeded, with doses of 1–2 centigrammes

[$\frac{1}{6}$ – $\frac{1}{3}$ grain], in arresting even the sweating of healthy individuals, in summer.

SALOL IN CHOLERA.

The SALOL treatment of cholera, first suggested by the results of Prof. W. LOEWENTHAL's laboratory experiments with Koch's cholera bacillus (see MERCK'S BULLETIN, Vol. III, p. 13), has recently been tried by Dr. FRANCISCO J. GONZALEZ Y SALVADOR, of Yba (Phillipine Islands), titular physician of the province of Zambales, in 53 cases, and with unparalleled success; out of the entire number he lost but 3, and these were already in the last stage of the disease when the treatment was begun. This represents a mortality of but 6 per cent; while the death-rate with every other method of treatment, during the present as well as during the last epidemic, has been on the average 45 per cent.

The SALOL was administered as follows (*Deut. Med. Woch.*):—An initial dose of 2 grammes [30 grains] was given on the appearance of the first symptoms; after that, 0.5 to 1 gramme [$7\frac{1}{2}$ –15 grains] every hour or half hour.

SALOPHEN AS AN ANTIRHEUMATIC.

Dr. FRÖHLICH reports (*Wien. Med. Wochen.*) on his experience with SALOPHEN—previously described (see MERCK'S BULLETIN, Vol. V, p. 114)—in 30 cases of acute articular rheumatism. In none of these did the remedy fail, it is claimed; the pain ceased as a rule in from three to four days, while the acute swelling of the joints disappeared in from six to eight days. However, extensive effusions were not influenced, nor did the medicament guard against relapses; furthermore, in two cases acute endocarditis appeared during the treatment.

On the whole, the author considers SALOPHEN a prompt and efficacious remedy against acute articular rheumatism, and prefers it to the salicylates for three reasons,—to wit: being decomposed only in the in-

testines, it does not irritate the stomach; it can be given in larger doses and for a long period without occasioning untoward effects (in the author's cases, these occurred only in three instances, and then they were only slight); it is tasteless.

In chronic rheumatism SALOPHEN was not so efficient; in six cases observed by Dr. F., only two were improved; and as an antipyretic, it proved to have but very little action.

SILVER NITRATE IN GONORRHEAL EPIDIDYMITIS.

According to Dr. T. TRZCINSKI, physician to the HÔPITAL SAINT-LAZARE at Warsaw, blennorrhagic orchi-epididymitis may be aborted in the beginning by means of local revulsion with a 1:10 ointment of SILVER NITRATE. He completely envelopes the diseased testicle with a small linen compress spread with a pretty thick layer of this salve; then he places cotton over the compress, applies a suspensory, and leaves the dressing in situ for twenty-four hours, which the patient should pass in bed.

It is stated that the application of the ointment provokes an intense burning sensation, which, however, dies out in an hour or two; but, at the same time, the testicular pain considerably diminishes. Twenty-four hours afterward, when the dressing is removed, the scrotal skin is found partly colored black and partly red and moist, and it is observed that the testicle has become much less painful. A simple dressing of cotton is then applied for twenty-four hours, and after that the patient wears a padded suspensory.

SOZAL;—A NEW ANTISEPTIC AND ASTRINGENT.

SOZAL is the para-phenol-sulphonate of aluminium— $(C_6H_4.OH.SO_3)_6Al_2$. It is described by Dr. SCHÄERGES of Berne, (*Pharm. Zeit.*) as occurring in crystalline granules of a strong astringent taste and faint phenolic odor; very easily soluble in water, glycerin,

and alcohol, yielding extremely permanent solutions.

Prof. GIRARD and Dr. LÜSCHER have tested SOZAL bacteriologically and clinically, and found that although it proved to be but a weak antiseptic, it rendered excellent service clinically as an astringent and antisuppurative in tuberculous ulcers, suppurations, and cystitis,—in this respect being similar to iodoform and the other aluminium preparations. In the last-mentioned affection it was employed in 1% injections as well as internally. Dose-statements and more definite therapeutical data are not given.

Dr. LÜSCHER recommends further experimentation with SOZAL, which he considers preferable to aluminium acetate on account of its extraordinary stability and great permanence.

STRONTIUM BROMIDE AS AN ANTI-EMETIC.

The favorable action of STRONTIUM BROMIDE in gastric affections—dyspepsia, acetic and lactic fermentations, flatulence from decomposition, etc.—has been known for some time, and has been alluded-to in a previous number of this journal (see MERCK'S BULLETIN, Vol. IV, p. 175); but in the capacity of a pure anti-emetic, it has been described only quite recently. Dr. G. CORONEDI, assistant to Prof. G. BUFALINI of Florence, finding himself one day in the presence of a case of incoercible vomiting of pregnancy, decided to try STRONTIUM BROMIDE, and with a successful result. The medicament was administered in doses of 1 gramme [15 grains] with each of the two principal meals, and its use was continued for a month. At the end of this time the tendency to vomiting had entirely disappeared, so that the treatment could be discontinued.

This observation induced Dr. CORONEDI (*Sem. Méd.*) to experiment with STRONTIUM BROMIDE as an anti-emetic in nine other patients at the medical clinic of the higher School of Medicine at Florence, all suffering from vomiting of divers origin—gastro-ec-

tasis, hysteria, acute gastric catarrh, chronic glandular gastritis of Brinton, chronic lead-poisoning, and septicæmia consequent upon an abortion. In every case the vomiting ceased more or less rapidly, sometimes even after but one or two doses of the salt, which was administered with the meals in doses of 2-3 grammes [30-45 grains] per day.

The author concludes from these observations that STRONTIUM BROMIDE possesses, besides its antidyspeptic effects and its analgesic action on the stomach, also pronounced anti-emetic properties, and therefore deserves to be employed in the treatment of vomiting from almost any cause. As the medicament has a very disagreeable taste when administered in solution, and, on the other hand, is too hygroscopic to be given in cachets, Dr. C. recommends prescribing and preserving it in small glass tubes hermetically closed with a cork, 1 gramme of the medicament in each tube and constituting a dose, which is to be taken in unleavened bread immediately before each meal.

ZINC CHLORIDE, SUBCUTANEOUSLY, IN LUPUS.

The favorable results obtained by Prof. LANNELONGUE of Paris with deep injections of ZINC CHLORIDE (see MERCK'S BULLETIN, Vol. IV, p. 120) in surgical tuberculosis, have suggested to a Russian physician by the name of J. FEDOROW the idea of treating lupus by means of hypodermic injections of the same medicament; the treatment was tried in two cases of several years' standing, and, it is claimed, with success.

The author proceeded as follows :

After having effected detachment of the crusts by the application of a wet compress covered with some impermeable material, the field of operation was dried by means of absorbent cotton, and anæsthetized as completely as possible by bathing the parts with a 5% solution of cocaine. Then subcutaneous injections of a 10% solution of ZINC

CHLORIDE were made into the circumference of the lupous ulcerations. Into each point was injected one-twentieth part of the contents of a Pravaz syringe, equivalent to 0.005 gramme [$\frac{1}{20}$ grain] of ZINC CHLORIDE; around each ulcer were made in all 2-4 injections, according to the size of the lupous focus. The maximum number of injections made at one sitting was ten; the intervals between the séances was about eight days, during which a glycerin dressing was applied.

The intense burning pain generally provoked by injections of ZINC CHLORIDE was rendered quite bearable by the cocaine baths. The two first days after the injection, no appreciable local modification was observed; on the third day the edges of the ulcers became swollen and reddened, and there was an elevation of the local temperature without fever. Then there survened a rapid development of granulations, and the ulcers cicatrized at the end of 14-20 days. At the base of some of the ulcerations there was sometimes noticed, on the fourth day after the injection, a zone of dead tissue, which, however, fell away and was replaced by healthy granulations after three to four days.

The first patient of Dr. FEDOROW received in all twenty-seven injections in four sittings and in the space of twenty-eight days; at the end of this period all the ulcerations had cicatrized, save one of small dimensions, which healed five days later under the influence of lead-plaster.

In the second case, thirty punctures were made at four séances in the space of thirty-two days, but the patient was obliged to abandon the treatment before it had given a complete result; nevertheless, when he returned for treatment six weeks later, all his wounds had cicatrized with the exception of one which healed two weeks later, after two injections of ZINC CHLORIDE.

The author believes that he would have obtained still more prompt results had the number of injections been increased; but, this being a new treatment, he pre-

ferred to proceed cautiously, in order to avoid the dangers of a general action of the medicament.

ZINC OXIDE IN HYSTERO-EPILEPSY.

Only a very short time ago Dr. P. CASCIANI related the favorable results he had obtained from quinine in certain cases of hystero-epileptic convulsions of a periodic type (see August number of MERCK'S BULLETIN, p. 450). Now Dr. NIERMEYER of Amsterdam recommends against that same affection, so rebellious to therapeutic means, another

medicament just as old, formerly often employed in the capacity of a nervine but at present more or less forsaken,—and that is ZINC OXIDE. Of 20 cases of hystero-epilepsy that had resisted all other medicaments so far employed, the author obtained considerable improvement in 15, even in a few days, from the administration of ZINC OXIDE in doses of 50 centigrammes [$7\frac{1}{2}$ grains] in the course of twenty-four hours (given with equal parts of powdered valerian or rhubarb). He therefore feels justified in recommending ZINC OXIDE in the treatment of the convulsive paroxysms of hysteria.

PRACTICAL HINTS

ON METHODS IN THERAPY, PHARMACY, ETC.

ACETONURIA.

From observations on the human subject and on animals, S. BOERI (*Brit. Med. Journ.*) draws the following conclusions :

1.—Physiological acetonuria may occur in man as well as in dogs and rabbits, acetone being present, however, only in minute quantities. Acetonuria cannot therefore be regarded as of any importance unless it greatly exceeds the physiological limits (12 to 15 mgr.).

2.—An experimental acetonuria can be produced by any means which are capable of causing destruction of the blood-elements. This result is probably due to the diminution of the oxygen contained in the blood and therefore in the tissues. The same explanation has been advanced by ALBERTONI and others to account for the increased elimination by the kidneys of substances like acetone produced in conditions of auto-intoxication.

3.—These observations on animals throw much light on the production of acetone in febrile conditions which are accompanied by destruction of corpuscles or of albuminous elements of the tissues.

4.—Acetonuria of intestinal origin cannot

be denied, but its occurrence from this cause is probably much more rare than many have imagined.

5.—Reduction of the alkalinity of the blood has not such an important bearing on the causation of acetonuria as is thought by some : for the phenomenon is physiological in the herbivora, and a pure vegetable diet has no appreciable diminishing effect in acetonæmia or in the acetonuria accompanying diabetes. In fact, a diminished alkalinity of the blood and the presence in it of acetone should be considered not as cause and effect, but rather as common results of a process of auto-intoxication.

CHOLERA TREATMENT.

A Russian physician by the name of K. VOLOVSKY reports (*Sem. Méd.*) that he has obtained excellent results in cases of pronounced cholera, from the following treatment :

First the patient is placed into a bath as warm as can be borne, at least, not below 37.5°C [99.5°F] in temperature; at the same time, an ice-bag is applied to the head, and small pieces of ice are eaten. As a result, it is claimed that the vomiting ceases immediately and does not reappear as long as the

patient remains in the bath, where he ought to stay at least half an hour. The cessation of the vomiting is taken advantage-of, by administering 1.25 grammes [19 grains] of calomel and 30 grammes [about 1 fl. oz.] of castor oil with a little wine or brandy. As soon as the patient commences to experience vertigo while in the bath, he is taken out and carefully dried, and a large mustard poultice is applied to the abdomen, covering the whole belly as well as the flanks, and ascending in a point to the middle of the sternum. The sinapism is kept in place by means of a roller bandage, and retained as long as possible.

It is stated that in the cases tending to recovery, the patient cannot bear the sinapism longer than 15 to 20 minutes, and its application is soon followed by a yellow stool; if, on the contrary, the patient tolerates the presence of the poultice, without complaining, for an hour or more, it may be concluded that the case will end fatally.

Owing to this treatment, many of the author's patients, though in the algid stage of the disease when admitted to the hospital, could leave the same after forty-eight hours.

ETHER;—ITS INFLUENCE ON THE ASSIMILATION AND TRANSFORMATION.

Dr. CHIPILINE has made a series of experiments in Prof. TCHOUDNOWSKY's laboratory, for the purpose of studying the effects of ether on nutrition. Each experiment comprised three periods, each of four days. The ether was administered, during the second period, in doses of 25 drops three times daily. The persons on whom the experiments were made were all young people between nineteen and twenty-one years of age and in perfect health. The results were as follows (*Bull. Gén. de Thér.*):

1.—The assimilation of nitrogen was improved in every experiment; in half of the cases, this improvement was maintained during the third period.

2.—The nitrogenous transformation was

diminished in every case; but this diminution was not kept up during the third period.

3.—The quality of the nitrogenous metamorphosis was equally improved in all the cases; this amelioration continued during the third period.

HEPATIC COLIC;—TREATMENT.

Dr. COLLADON of Geneva, himself subject to hepatic colics, describes (*Sem Méd.*) what he has found, by observations on his own person, to be the best means of treating the affection from which he suffers. These means vary, of course, according to the three periods of the affection: the prodromal, the active period of the attack, and the declining period.

Among the prodromata of hepatic colic the doctor enumerates several that seem to be little known. These are: a peculiar somnolence, a general torpor—even after a good night, irregular arterial pulsations—particularly at the temples, a false sensation of hunger, a feeling of emptiness in the epigastrium, or, rather a very pronounced nauseous state, and constriction of the pharynx; eructation and flatulence; polyuria. Then the patient experiences a sensation of constriction in the hypochondrium; his abdomen becomes distended, and the region of the gall-bladder becomes sensitive to pressure. Generally a stool precedes the attack some hours.

The treatment of the prodromal period should be, according to Dr. C., purely expectant. Purgatives and emetics are objectionable. The patient should observe complete mental and physical rest; his diet should be strict,—peptones, bouillon deprived of fat, grillé, scrapped meat, lean ham, toasted bread, Indian meal, meat jelly, fruits,—all in small quantity. As drink, he should take light tea, artificial carbonated water.

During the actual attack, the author proscribes injections of morphine, at least at the beginning of the attack: for he

believes that they entail the risk of impaction of the calculus or of grave complications. On the other hand, inhalations of chloroform,—pushed only to incomplete anæsthesia, are recommended, as they do not weaken the contractility of the biliary excretory organs, although they sufficiently diminish their sensibility. Another means advocated is the application over the epigastrium and the back of two rubber bags, half-filled with very warm water; this is considered an excellent sedative, and believed to procure a feeling of exquisite well-being.

In the declining period, the author prescribes a laxative—to evacuate the biliary concretions from the intestine, and then administers cholagogues, among which he gives the preference to ox-gall and podophyllin. The latter, taken in small doses for a number of days consecutively, produces a daily stool and suppresses the sensation of constriction in the right hypochondrium.

To prevent the return of the attacks, the best means is, according to Dr. C., to strictly observe the diet usually followed in such cases. Cold douches over the right hypochondrium are also useful. Finally, Dr. COLLADON considers massage of the hypochondriac region a powerful preventive means; practiced by the patient himself for fifteen minutes at a time, morning and evening, it affords great relief.

STRONTIUM IODIDE;—ACTION ON THE CIRCULATION.

At a recent meeting of the SOCIÉTÉ DE BIOLOGIE, of Paris, Drs. MALBEC and LAPICQUE communicated the results of their experiments with intravenous injections of STRONTIUM IODIDE, made with a view to determining the action of this salt on the circulation. It was found that such injections constantly cause a considerable and rapid elevation of arterial pressure, with a manifest acceleration of the cardiac rhythm; this first phase is

succeeded by a slowing of the heart. If a sufficiently large dose of the salt be injected, there is produced, later-on, a new phase, one which, it is maintained, is found besides with all the iodides and which shows itself by a lowering of the blood-pressure coincident with a considerable acceleration of the cardiac contractions. On the whole, the action of the STRONTIUM IODIDE was found to be very analogous to that of potassium iodide.

FERRUGINOUS WATERS IMPAIRED BY AGE.

According to Prof. A. GAUTIER, as reported at a recent meeting of the ACADÉMIE DE MÉDECINE DE PARIS, the ferruginous waters lose all or part of their iron after being bottled for some months. The following shows the degree of impairment.

PERCENTAGE OF METALLIC IRON.	
<i>At the source.</i>	<i>After some months.</i>
Spa....	0.0045 0.0026
Vichy.....	0.00073..... 0.00011
Auteuil....	0.0081 0.00082
Bussang....	0.0006 0.00007
Forges....	0.0052 0.00007
Lamalon..	0.0005 0.000059
Orezza.....	0.0062 0.00011
Pougnes....	0.0007 0.0001
Sulzbach...	0.00112..... 0.0000

HYPNOTIC SLEEP.

At the recent Congress of Scandinavian Naturalists, Dr. C. KRARUP of Copenhagen read a paper on the physiological theory of hypnotic sleep, in which, first of all, attention was drawn to the fact that the superior parts of the brain, which during the hypnosis, are less active than in the normal state, are supplied with blood by the internal carotid arteries, while the inferior portions, possessed of greater activity, receive their blood from the vertebral arteries. If then we admit the hypothesis that, during the hypnotic sleep, the internal carotids are contracted, it follows that the vertebral arteries ought to be dilated by collateral fluxion, and this fluxion ought also to obtain in the external

carotids,—a phenomenon actually observed, it is maintained, in the hypnotized. Resting on this hypothesis, we can interpret a number of the phenomena of hypnotic sleep, if we consider that there is an immediate contact between the branches, supposed to be dilated, of the basilar artery and the oculomotor, trigeminal, facial, and auditory nerves, near the points of origin of these nerves. Those arteries evidently ought to produce, by their dilatation, an excitation of the nerve-trunks, and as the internal carotid plexuses of the great sympathetic, by reason of the presumed contraction of the internal carotid arteries, are also in a state of excitation, we ought to expect to see a series of symptoms result from that excitation. These phenomena really occur, according to the author; they are: movements of the iris, trembling of the eyelids, augmentation of the lachrymal secretion, movements and protrusion of the eyeballs, and, finally, exaggerated acuteness of hearing,—the latter phenomenon being associated with dilatation of the internal auditory artery, which arises from the basilar and supplies the entire peripheral nervous apparatus of the sense of hearing. Besides, the dilatation of the vertebral arteries produces arterial congestion of the medulla oblongata capable of giving rise to a cataleptic condition.

As for the production of hypnotic sleep by BRAID's procedure, the author states that in that experiment the convergence of the eyes exerts a traction in front of the abducent nerves, from which results a tension of the two carotid plexuses of the great sympathetic, by reason of the anastomoses which unite the latter to the sixth pair of cranial nerves. This tension then produces an excitation of the carotid nerves, and, in consequence, a contraction of the internal carotid arteries.

The occipital lobes of the brain, which receive blood not only from the internal carotid but also from the posterior cerebral artery, thus present, during the hypnosis, a remark-

able irrigation,—which permits of understanding the considerable acuteness of sight often observed during hypnotic sleep.

It might be supposed that the anastomoses of the internal carotid with the vertebral arteries carry the arterial blood of the vertebral system into the carotid system; but, according to the author, this is not the case, since the blood-pressure is greater in the latter system by reason of the contraction of the internal carotids: on the contrary, the flow of blood takes place from the carotid towards the vertebral system.

The great resemblance of provoked somnambulism with natural somnambulism and the state produced by the inhalation of chloroform, gives to hypnotism, it is said, its character as a pathologic condition; this, in the author's opinion, is no ground for renouncing the therapeutic application of hypnotism, for it may be said by analogy that, of the many methods of therapy, there are but few that cure without first inducing a pathologic condition.

NEW SYMPTOM OF PARALYSIS OF THE LARYNGEAL MUSCLES.

In the last annual session of the French Society of Laryngology and Otology, Dr. FAUVEL (*Wien. Med. Presse*) drew attention to a new symptom of paralysis of the laryngeal muscles, which he considers of special value to the general practitioner. It consists in a peculiar garlicky odor of the breath, and is said to be so constant that the author was able on several occasions to establish the diagnosis of paralysis of the laryngeal muscles alone from this symptom, without the aid of a laryngoscopic examination; it is present in all varieties of paralyses of the laryngeal muscles, whether due to cerebral or spinal disease, hysteria, tumors of the throat or œsophagus, swelling of the bronchial glands, aneurisms, tuberculosis, or any cause whatever. In 50 cases of such paralyses the garlicky odor was perceptible in all, and all other possible causes

of the odor (ulcerations, tracheal ozæna, fetid bronchitis, etc.) could positively be excluded. It is stated that the odor is not perceived by the patients themselves, and cannot be removed by the most scrupulous cleansing of the mouth and throat; it recedes with the paralysis, and disappears eventually, when the voice regains its normal clang-tint.

As regards the mechanism of the production of the odor, Dr. F. believes the mucus on the mucous membrane of the upper respiratory tract dries up and decomposes.

BREECH-PRESENTATION;—AN EARLY SIGN THEREOF.

Prof. PINARD, of the Paris Faculty of Medicine, has discovered a new sign of breech-presentation, consisting in a violent pain provoked by manual pressure over the fundus uteri. This pain generally appears at the point where and at the time when cephalic ballottement is produced; but it may also be spontaneous. If it be observed in a woman beyond the sixth month of pregnancy, the professor says we may almost certainly declare the case one of breech-presentation.

The pain in question is said to be due to the presence of the foetal head in the fundus of the womb, producing an irregular distension of the superior segment of the uterus; however, it may be very slight or even entirely wanting in cases where, the tension of the uterine walls being considerable—as is the case when the amniotic fluid is abundant, the head is in contact with the fundus uteri only over a very small surface. Thus, the pain indicative of breech-presentation is not an absolutely constant symptom; still it is considered a sign of real value, since it is met-with in three-fourths of the cases.

As for the treatment of the pain in question, it is advised to perform version by external methods, which immediately dissipates all the painful phenomena. When version is impossible, it is recommended to

urge the woman to have patience, assuring her that the pains will disappear after confinement.

ACUTE METRITIS;—ANTISEPTIC TREATMENT.

According to Dr. LABADIE (*Rev. Chirurg. de Paris*), two indications are to be fulfilled in the antiseptic treatment of acute metritis;—to wit: to restore the normal calibre of the cervico-uterine canal, and to realize uterine antiseptis. For the first purpose, the vagina being previously rendered aseptic by means of bi-daily injections of a 1:500 solution of corrosive sublimate, the neck of the uterus is dilated with a laminaria tent which has been kept in a 1:1000 solution of sublimate, and antiseptic irrigation, practiced. Then the vagina is tamponed with sublimate cotton. The dilatation is repeated daily until the cervical canal again is of normal calibre.

For the second purpose, tamponing with strips of iodoform gauze 2 centimetres [$\frac{4}{8}$ inch] wide, and impregnated with creasoted glycerin (1:3), is resorted-to daily.

This treatment is employed only when the metritis is not of long standing and when the antiseptic application can be brought into contact with the entire surface of the mucous membrane; if otherwise, uterine curettage is considered indicated.

PUERPERAL ECLAMPSIA.

In a paper read at a recent meeting of the Dresden Gynæcological Society, Dr. GOLDBERG (*Centralbl. für Gyn.*) reported on 81 cases of puerperal convulsions occurring in the course of 10,718 labors. Fully seven-eighths of the cases occurred in primiparæ; in all save two the head presented; there was also a large proportion of twins. In 44 of the cases it was ascertained that the advancing head exerted no pressure upon the ureters; in the remaining 37 this point could not be demonstrated positively save in a very few, although such pressure may

have taken place. The proportion of albumin in the urine was greater and albuminuria much more frequent in the fatal cases than in those that recovered. Dropsy occurred in about fifty per cent of the cases, but was not specially marked in the severer ones. The usual prodromatous symptoms were cephalalgia for a few days, vertigo, nausea, nervous irritability, rapid irregular pulse, cyanosis, dyspnoea, and loss of mental equilibrium. In 17 cases which proved fatal purely from eclampsia, acute nephritis was present in 16, and cerebral lesions were found in 14,—to wit: hæmorrhage in 4, nervous hyperæmia in 1, œdema in 8.

The total mortality was 24.7 per cent; in the primiparæ it was 21.43 per cent, while in the multiparæ, who suffered worse than the primiparæ, it ran as high as 45.45 per cent. The mildest cases were those where the symptoms presented themselves already at the delivery or during the puerperal state. The symptoms were more serious the earlier before term the paroxysms occurred. The death of the babe in utero did not benefit the patient in any way, as some authorities maintain. In the vast majority of cases where instrumental or other active interference was practiced, the convulsions were thereby cut short.

In the author's opinion, therefore, the proper treatment is in fact speedy delivery; inhalations of chloroform, injections of morphine, chloral hydrate, warm baths, and isolation in a dark room, are the best therapeutic agents.

DISLOCATION OF THE CLAVICLE;—NEW MODE OF TREATMENT.

Dr. H. HAMILTON, of Lucknow, reports (*Brit. Med. Journ.*) on a new mode of treating dislocation of the clavicle. The case is related of a young lieutenant who had sustained a dislocation of the outer end of the clavicle upwards, from a fall. He was put up with a pad in the axilla and an ordinary

roller bandage carried round the body and finally brought up over the injured clavicle, on which a pad was placed. The arm was then placed in a sling, and the bones were seen to be in the proper place.

Not being satisfied with this arrangement, and feeling certain that the bandages would become loose and require constant reapplication, the author set about devising some more permanent method of keeping the bones in place. A very large pad was placed in the axilla, and a piece of country belting about $1\frac{1}{2}$ inch broad, known in India by the name of "nawar," and very strong, soft, inelastic, and pliable, was passed round the injured arm and body, made to overlap about 3 or 4 inches, and the ends securely stitched together. Another piece was then attached by stitches to this at the back, a little to the left of the middle line, brought firmly up over the displaced clavicle, on which was placed a large pad, and secured to the circular band below by stitches. The pad over the clavicle was secured by a few stitches to the belting. To keep up a gentle downward traction a short piece of belting with a buckle at the end was attached to the circular band in front, and another longer piece at the back, both in the depending position. The longer piece was now brought forward between the legs and buckled to the shorter piece. A short sling to support the hand and forearm completed the arrangement.

The patient was now found to be so securely put up that he could not shake the appliance in any way, and found it quite comfortable. It was only necessary to undo the perineal band when going to stool. This treatment was continued nearly three weeks, when the officer passed from the doctor's care. Subsequently it was learned that he had regained full power in the arm; and it was assured that the bone was in its place, which Dr. H. was quite satisfied was the case from the fact of his patient's having been able to ride in steeplechases within

three months of the accident, and perform all his military duties without any loss of power or movement.

It is claimed that this apparatus secures absolute fixity of the arm and shoulder; the pad in the axilla acts as a fulcrum to draw the acromion outwards, and allows the clavicle to fall into its place, while the clavicular pad and band keep that bone in its place; but what distinguishes this apparatus, is the application of the principle of *downward* traction, as maintained by the perineal band. It is commonly asserted that in all fractures and dislocations of the clavicle there is displacement of the shoulder downwards, "due chiefly to the weight of the arm." The author holds that there could be no falling of the shoulder as a whole, unless all the muscles connected with it were paralyzed. The muscles that elevate the shoulder are among the most powerful in the body. Can it be supposed that the tonic contraction of these muscles under the irritation of an injury is abolished? Further, the thorax is conical in shape, diminishing in girth from below upwards, so that if the scapula fell it would be applied to a wider part of the chest, and there would be a separation of the bones in dislocation, or of the fragments in fracture. Any treatment, therefore, in an injury of the clavicle that aims at elevation of the shoulder, is considered wrong in principle, as it increases the over-riding of the bones or fragments by applying the scapula to a narrower part of the chest wall, and thereby diminishing the distance between the point of the shoulder and the middle line.

We ought to endeavor, it is maintained, to remove the acromion as far as possible from the middle line both in fractures and dislocations, so that the bones or fragments of bone may fall into place, and for this purpose nothing is more effective than keeping the shoulder depressed. This indication is fulfilled by the perineal band, which, with a little care, can be so applied that it will

keep up steady downward traction without any discomfort to the patient.

To the treatment as above described, it would be easy to add the principle of the treatment by three handkerchiefs, as advocated by SYME. A band of belting could be sewn round each shoulder, and to each of these another short piece could be attached horizontally at the back, one of them ending in a buckle. By passing the other through the buckle, any amount of force could be applied in drawing the shoulder back.

Prof. G. SÉE regards *pleuritis* as "patients affected with *tuberculosis* in an evolutionary stage," and commends to treat them "as one would treat consumptives."

INCOERCIBLE HICCOUGH is often completely arrested, according to Dr. BROWN, by repeated *lavage* of the stomach.

For the moment nothing is heard any more about the treatment of *EPILEPSY* by the *antirabic virus*. Was the project abandoned?

GELSEMIUM TINCTURE, 2 or three drops every four hours for a few days, is reported to be efficacious in acute spasmodic *urethral stricture*.

Dr. LABORDE declared at the Paris Academy of Medicine that "physiologists who make experiments on dogs observe greater precautions than surgeons, because animals, dogs especially, constitute an important element in the economy of laboratories." In his journal, "*La Médecine des Ferments*," Dr. DÉCLAT gives the following brutal interpretation of the preceding passage: "A free but mathematically exact translation: The physiologists bestow greater care on the dogs because of their high costs. The hospital surgeons care but little about their patients, because they cost them nothing." Surgeons will no doubt protest, and not without right, against such an interpretation.

GATHERED FORMULAS.

100 to 104.—Frost Bites.—(Treatment.)

[PASCHKIS—*Ther. Monatsh.*]

—LINIMENT.—

Tannic Acid..... 1 part.
Glycerin (or Camphor Spirit).....25 parts.
Externally!

or:

Tannic Acid..... 2 parts.
Alcohol..... 5 "
Collodion.....20 "
Benzoin Tincture..... 2 "

[CARRIÉ.]

—OINTMENT.—

Powdered Camphor..... 3 grammes [45 grains].
Lanolin..... } of each, 15 " [½ ounce].
Vaselin..... }
Hydrochloric Acid..... 2 " [½ fl. dr.].

Rub-in at night!

[RUST.]

—PAINT.—

Peru Balsam..... 5 grammes [70 min.].
Oleo-balsamic Mix- }
ture..... } of each, 30 " [1 fl. oz.].
Cologne Water.... }
Externally!

[HUSEMANN.]

—LOTION.—

Alum..... } of each, 2 grammes [30 grains].
Borax..... }
Rose Water.....150 " [5 fl. oz.].
Benzoin Tincture..... 5 " [80 min.].
Externally!

105.—Hyoscyamus as a Cough Sedative in Measles.

[Prof. WIDERHOFER—*Ther. Monatsh.*]

Hyoscyamus Extract... 0.15 gramme [2¼ grs.].
Distilled Water.....70 grammes [2¼ fl. oz.].
Syrup.....10 " [2 fl. drs.].
Teaspoonful every 2 hours!

106.—Succedaneum for Opium as an Analgesic.

[P. PORTIER—*Sem. Méd.*]

—CACHETS.—

Cocaine Hydrochlorate...0.5 gramme [7½ grains].
Phen-acetin.....1.5 " [23 "].
Exalgin.....0.5 " [7½ "].
Salicylic Acid.....1.0 " [15 "].

Dispense in 10 cachets!—One every two or three hours, until cessation of the pain.

107 and 108.—Chronic Eczema with Epidermal Thickening.—(Treatment.)

[H. VON HEBRA—*Sem. Méd.*]

—OINTMENT.—

Prepared Chalk..... } of each, 2 parts.
Sublimed Sulphur..... }
Tar..... 8 "
Starch.....20 "
Acacia Mucilage..... } of each, 15 "
Glycerin..... }

Externally!

When there is considerable thickening of the epidermis, amounting to a true keratosis, the following is recommended:

—OINTMENT.—

Salicylic Acid..... } of each, 2 parts.
Glycerin..... }
Acacia Mucilage..... 3 "
Castor Oil..... 1 "

Externally!

109 and 110.—Eczema seborrhoicum and Eczema rubrum.—(Treatment.)

[E. BESNIER—*J. des Mal. Cut. et Syph.*]

—PAINT.—

Resorcin..... 1-2 parts.
Sweet-almond Oil..... } of each, 12 "
Olive Oil..... }

or:

—OINTMENT.—

Washed Sulphur..... 1 part.
Zinc Oxide..... 2 parts.
Vaselin.....20 "

Externally!

111.—Calomel in Anuresis.

[EICHHORST AND ZANGGER—*Sem. Méd.*]

—PILLS.—

Calomel (condensed }
by steam)..... } of each, 2 grammes [½ dr.].
Powdered Digitalis.. }

Acacia Syrup.....a sufficient quantity.

Divide into 20 pills!—1 three times a day, at intervals of four hours.

(Although Calomel might appear to be contraindicated in interstitial nephritis, the effect of these pills is reported to be excellent,—their diuretic action being very powerful and produced even in the cases where Digitalis, Strophanthus, and Squill, employed alone, give no result.)

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SPECIFIC LIGHTS ON THE MATERIA MEDICA;

ACCORDING TO LATEST REPORTS.

The annexed ALPHABETICAL TABLE, embracing the most important and recent constituents of the MATERIA MEDICA—especially the Chemical Preparations (Salts, Alkaloids, the modern Synthetic compounds, Coal-tar derivatives, etc.)—presents three principal features of interest and value to MEDICAL PRACTITIONERS, as follows:

1.—It is *not restricted to the Official Materia* of the PHARMACOPŒIAS, *nor to what has elsewhere been described in Books*; but embraces ALL THE NEW REMEDIES of any consequence.

2.—All those Medicinal Substances whose qualities and uses *are less perfectly known* to the PROFESSION generally, or on which *information is not readily obtainable* in a concise form from books of reference, are here provided with brief DESCRIPTIVE NOTES on their pharmacological characteristics, physiological

actions, and therapeutic employment—covering the main points of interest to the Practitioner.

3.—An approximately accurate statement of the MONEY VALUES of most of these substances has been inserted, which will be useful to Practitioners—especially in the case of New Remedies—in *computing relative costs of treatment* with different therapeutic agents.

NOTE.—THIS TABLE *will be re-edited and republished from time to time* in MERCK'S BULLETIN, whenever necessitated by the amount of NEW INFORMATION meanwhile secured, on REMEDIES discovered or introduced since the previous publication; or on the Qualities, Solubilities, Therapeutic Uses, Doses, Antidotes, etc., etc., of Remedies already noted.

ABBREVIATIONS employed in this Table—"Dose," in the descriptions below, always means "Dose by mouth";—"Inj."=Hypodermic Injection (unless otherwise stated);—"Applic."=External Application.

Special Remark.—The PHARMACOLOGIC AND THERAPEUTIC NOTES given in this Table are taken from the best sources accessible at the time (being, in most instances, Clinical Reports by known authors, from Recent Medical Literature); the EDITOR consequently disclaims any direct responsibility for them.

Acetal (DI-ETHYL-ACETAL), Pure.— $\text{CH}_3\text{CH}(\text{O.C}_2\text{H}_5)_2$.—Limpid liquid; sp. gr., at 22°C (71.6°F), 0.821; boil.-pt. 104°C (219.2°F). SOL.: in 18 W. at 25°C (77°F). NARCOTIC. DOSE: 5-10 grammes ($1\frac{1}{4}$ - $2\frac{1}{2}$ fl. drs.).

oz. 1.40
Acetone.....lb. 0.95
C. P., boil.-pt. 56 - 58°Clb. 1.40

Acid, acetic, U. S. P., sp. gr. 1.048.....lb. 0.25
Glacial, Absolute ($99\frac{1}{2}$ - 100%), sp. gr. 1.055, solidif. at 15.5°C (60°F).....oz. 0.20

agaricic (AGARIC, AGARICINIC, or LARICIC ACID; AGARICIN, Ph. G.III).— $\text{C}_{16}\text{H}_{30}\text{O}_5 + \text{H}_2\text{O}$.—From Fungus laricis (White Agaric). White powder. SOL.: slightly in W. Efficacious ANTIHIDROTIC in Phthisis. DOSE: 0.02-0.1 gramme ($\frac{1}{8}$ - $1\frac{1}{2}$ grs.) at night, in pills.
15 gr. 0.55

arsenious, Pure, Lumps.....oz. 0.15
ANTIDOTES: Freshly prepared Hydrated Iron sesqui-Oxide, Hydrated Iron sesqui-Oxide with Magnesia. Pure Powder.....oz. 0.20

benzoic, from Benzoin Resin, Sublimed, Perf. White.....oz. 0.25
From Toluol.....oz. 0.20

boric (BORACIC), C. P., Cryst., U. S. P....lb. 0.75
C. P. Powder.....lb. 0.90

camphoric.— $\text{C}_8\text{H}_{14}(\text{CO.OH})_2$.—Colorless crystals, melting at 178°C (352.4°F). SOL.: freely in A., E., 50 Fats, 50 Oils, slightly in W. ANTICATARRHAL (Coryza, Angina, Laryngitis, etc.), ANTIHIDROTIC (Phthisis), Surgical ANTISEPTIC (Laryngeal Ulcers, etc.). APPLIC.: in $\frac{1}{2}$ - 2% solut., every 2-3 hrs., as spray, douche or paint. DOSE (ANTIHIDROTIC): 1 gramme (15 grs.) 3-4 times daily, or 2 grammes (30 grs.) at night, in wafers.....oz. 0.80

Acid, carbolic, C. P., Loose Cryst., U. S. P.

ANTIDOTES: Calc. Saccharate, Calc. Carbon., Sod. or Magnes. Sulphate.

cetraric (CETRARIN).— $\text{C}_{18}\text{H}_{16}\text{O}_8$.—Bitter principle of Cetraria islandica, white, bitter needles. SOL.: in boiling A. HÆMATINIC, STOMACHIC, PERISTALTIC (Chlorosis, digestive disturbances with Anæmia, etc.). DOSE: 0.1-0.2 gramme ($1\frac{1}{2}$ -3 grs.) twice daily, in pills.
15 gr. 1.15

chromic, Pure, Cryst., U. S. P.....oz. 0.20
C. P., Cryst. Non-deliquescent Escharotic. Recently lauded also in obstinate Syphilitic Ulcerations. APPLIC.: pure, melted on silver probe, every 24-48 hrs., or in stick. ANTIDOTES: Powd. Iron with Syrup Magnesia in excess.....oz. 0.40

chrysophanic,—so-called,—Medicinal: see Chrysarobin.

cinnamic (CINNAMYLIC), C. P.— $\text{C}_6\text{H}_5\text{CH.CN.CO OH}$.—White, Odorless crystals. SOL.: in hot W., A., E.; insol. in cold W. Recently lauded as an ANTITUBERCULAR (Internal and Surgical Tuberculosis, Lupus, etc.). APPLIC.: in Int. Tub., intravenously in 5% oily emulsion with a 0.7 solution of Na-Cl, 0.1-1 gramme ($1\frac{1}{2}$ -15 m) twice a week; in Surg. Tub., in 5% emulsion or alcoholic solution; in Lupus, in 5% alcoholic solution with 5% Cocaine.....oz. 2.00

cubebic. The antiblennorrhagic principle of Cubebis.— $\text{C}_{28}\text{H}_{30}\text{O}_7$.—White, wax-like substance, which soon turns brown on exposure. SOL.: easily in A., E. Internal ANTIGONORRHOIC. DOSE: 0.3-0.6 gramme (5-10 grs.) several times daily, in pills. Max. Dose: single, 1 gramme (15 grs.); daily, 5 grammes (75 grs.).

di-chlor-acetic, Pure.....oz. 1.95

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Acid, di-iodo-salicylic.— $\text{OH.C}_6\text{H}_2\text{I}_2.\text{CO}_2\text{H}$.—White micro-crystalline powder. SOL.: very little in W.; readily in A., E.—ANTIRHEUMATIC, ANTIPYRETIC, ANTISEPTIC, etc. (like the Salicylates). DOSE: 1.5-4 grammes (23-60 grs.) daily, in wafers.....oz. 1.75

formic, Pure, sp. gr. 1.06.....oz. 0.25
Conc., sp. gr. 1.20.....oz. 0.40

gallic, Cryst., U. S. P.....oz. 0.25

gymnemic.— $\text{C}_{32}\text{H}_{55}\text{O}_{12}$.—Greenish-white powder of a harsh, sour taste. SOL.: easily in A.; slightly in W., E. AGEUSIC, completely blunting the sense of taste for sweet or bitter substances. APPLIC.: in 12% solut. (as a mouth-wash prior to taking bitter medicines).
15 gr. 1.00

hydrobromic, Diluted, U. S. P.—Max. DOSE: single, 40 drops; daily, 100 drops.....oz. 0.15

hydro-cinnamic (HYDRO-CINNAMYLIC; BENZYL-ACETIC; BETA-PHENYL-PROPIONIC; HOMO-TOLUIC).— $\text{C}_6\text{H}_5.\text{CH}_2.\text{CH}_2.\text{COOH}$.—Acicular, reddish-white crystals, melting at 48-49° C (say 119 F). SOL.: in 6 A., in E.; poorly in W. ACTION, DOSE, etc.: same as Acid Phenyl-acetic.

hydro-iodic (HYDRIODIC).—sp. gr. 1.70.
oz. 0.75

hypo-phosphorous, Solution.—sp. gr. 1.15.
oz. 0.30
Diluted, 10%.....lb. 0.20

lactic, U. S. P., sp. gr. 1.21.....oz. 0.30
Diluted.....oz. 0.15

mono-chlor-acetic.....oz. 0.60

oleic, Clear.....lb. 0.60

oxy-naphthoic, alpha.— $\text{C}_{10}\text{H}_8.\text{OH}.\text{COOH}$.—White, inodorous powder. SOL.: 30,000 W., aqueous solutions of bi-carbonates or of NH_3 , somewhat in A., C., Benzene, Oils. External and Internal ANTISEPTIC and ANTIZYMOtic; 5 times as powerful as Salicylic Acid. APPLIC.: like Iodoform. DOSE: 0.1-0.2 gramme (1½-3 grs.).....lb. 2.10

per-chloric, Pure.....oz. 0.60

per-osmic (OSMIUM TETRA-OXIDE). Anhydrous (so-called "Osmic Acid").— OsO_4 .—Yellow, hygroscopic needles. SOL.: in W., A., E. ANTINEURALGIC (Sciatica particularly), DISCUTIENT (Tumors), ANTI-EPILEPTIC. DOSE: 0.001 gramme ($\frac{1}{32}$ gr.) several times daily. INJ.: 0.003-0.01 gramme ($\frac{1}{20}$ - $\frac{1}{10}$ gr.) daily, in 1% solut.
½ gm. 1.30

phenyl-acetic (ALPHA-TOLUIC).— $\text{C}_6\text{H}_5.\text{CH}_2.\text{CO}_2\text{H}$.—Shining, white laminæ, melting at 76.5° C (169.7 F). SOL.: in A., E., hot W. Internal ANTISEPTIC, ANTITUBERCULAR, etc. (Typhoid Fever, Pulmonary Phthisis, etc.). DOSE: 10 gradually increasing to 20 drops of a concentrated (1:6) alcoholic solut., three times daily, in 1 oz. W.....oz. 2.00

phosphoric, Glacial, Sticks.....oz. 0.15
Glacial, Small Lumps.....oz. 0.15
Conc., U. S. P. (50% H_3PO_4).....lb. 0.65
Dilute, U. S. P., 10%.....lb. 0.30
Syrupy, C. P.....lb. 7.50

picric (PICRIC; PICO-NITRIC; CARBAZOTIC), C. P., Cryst.....oz. 0.35
ANTIDOTE: Albumen.

pyro-gallic, Resublimed.....oz. 0.55

pyro-ligneous, Purif., Ph. G. III....lb. 0.50

salicylic.....oz. 0.20
From Wintergreen.....oz. 0.85

sclerotic (SCLEROTINIC), acc. to DRAGENDORFF.
½ oz. 0.75

sulpho-anilic (SULPHANILIC; PHENYL-SULPHAMIC), Cryst., White— $\text{C}_6\text{H}_7\text{NSO}_3$.—Small needles. SOL.: in 112 W., less in A.; insol. in C., E. Recently used as a test (EHRlich's) for Typhoid Fever....oz. 0.60

Acid, sulpho-salicylic (SALICYL-SULPHONIC).— $\text{C}_6\text{H}_5.\text{SO}_3\text{H}.\text{OH}.\text{CO}_2\text{H}$.—White crystals. SOL.: readily in W., A. Sensitive and reliable URINE-ALBUMIN TEST.
oz. 1.00

sulphuric, C. P., absol., sp. gr. 1,840...lb. 0.50

tri-chlor-acetic.— $\text{CCl}_3.\text{CO}_2\text{H}$.—Deliquescent, rhombohedral crystals, melting at 52.3° C (126.1 F), boiling at 195° C (383 F). SOL.: freely in W., A., E. Powerful ESCHAROTIC (Warts, Nævi, Corns, etc.). ASTRINGENT (Naso-pharyngeal Affections, Gonorrhœa, etc.); also a sensitive and reliable URINE-ALBUMIN TEST. APPLIC.: pure, or in concentrated solut.
oz. 0.60

Aconitine, Amorphous, Pure.— $\text{C}_{33}\text{H}_{43}\text{NO}_{12}$.—DOSE: 0.001-0.004 (!) gramme ($\frac{1}{64}$ - $\frac{1}{16}$ (!) gr.). APPLIC.: in oint. or solut. (1-2: 250-500 vehicle). ANTIDOTES: Ammonia, Atropine, Digitalis.....½ oz. 1.35
Cryst., Pure (10 times as strong as the Amorphous!).
15 gr. 1.35

Adonidin.—Glucoside from Adonis vernalis. Hygroscopic, yellowish-white, bitter powder (when recently made). SOL.: Easily in W., A.; insol. in E., C., Benzene. HEART TONIC and DIURETIC (particularly in aortic and mitral insufficiencies). DOSE: 5-10 mille gr. ($\frac{1}{12}$ - $\frac{1}{8}$ gr.) several times daily, in pills, or in solut. in Chloroform water with Ammon. Carb. Max. DOSE: 3 centigr. ($\frac{1}{2}$ gr.).....5 gr. 1.50

tannate.—Yellowish-brown powder. SOL.: slightly in W., easily in A.; insol. in E. ACTION, DOSE, ETC., practically the same as the alkaloid itself.

5 gr. 1.40

Agaricin, C. P. Max. DOSE: single, 0.015 gramme ($\frac{1}{4}$ gr.); daily, 0.05 gramme ($\frac{3}{4}$ gr.).....15 gr. 0.30

Agathin (SALICYL-ALDEHYD-METHYL-PHENYL-HYDRAZONE).— $\text{C}_6\text{H}_4.\text{OH}.\text{CH}:\text{N}.\text{H}.\text{CH}_3.\text{C}_6\text{H}_5$.—Small, white, odorless, insipid leaflets, melting at 72° C (161.6 F). SOL.: in A., E., Benzene; insol. in W. ANTINEURALGIC (Sciatica and other Neuralgias), ANTIRHEUMATIC, etc. DOSE: 0.5 gramme ($\frac{7}{12}$ grs.) 2 or 3 times daily.

Alantol.— $\text{C}_{20}\text{H}_{32}\text{O}$.—Liquid "stearoptene" found beside Helenin in Elecampane Root; boil.-pt. 200° C (392 F). Internal ANTISEPTIC, ANTICATARRHAL, etc., like Helenin. DOSE: 0.01 gramme ($\frac{1}{3}$ gr.) 10 times daily, in pills, powders or alcoholic draughts.

½ oz. 1.35

Alcohol, amylic, Primary, ("Fusel Oil")...lb. 0.55
Pure.....lb. 0.90

Allyl tri-bromide (TRI-BROM-HYDRIN).— $\text{C}_3\text{H}_5\text{Br}_3$.—Yellowish liquid, sp. gr. 2,430, boil.-pt. 217° C (422.6 F). Energetic SEDATIVE and ANODYNE (Hysteria, Asthma, Whooping-cough, etc.). DOSE: 5 drops, 2 or 3 times daily, in capsules. INJ.: 2 or 3 drops, dissolved in 1 c.c. (16 m.) of E.....oz. 2.00

Aloin, C. P. Max. DOSE: single, 0.3 gramme ($\frac{4}{10}$ gr.); daily, 0.6 gramme (9 grs.).....oz. 0.30

Alum, C. P.....lb. 0.35

Aluminium acetate, Pure, Dry.....oz. 0.35

aceto-tartrate, Dry. Transparent, faintly yellowish granules, of a sour, astringent taste. SOL.: slowly in 1 cold W.; insol. A., E., Gl. Energetic, non-poisonous ASTRINGENT and DISINFECTANT (chiefly in Diseases of the Nose and Throat). APPLIC.: in ½-2% solut., or as snuff with 1 or 2 parts Boric Acid.

oz. 0.45

bromide.....oz. 0.60

chloride, Pure, Dry.....oz. 0.35

oxide, Prec., Pure (Hydrate), U. S. P....lb. 1.45

sulphate, Com'l.....lb. 0.15
C. P., Cryst.....lb. 1.45

tartrate, Pure.....oz. 0.50

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Ammonium acetate , Cryst.....oz.	0.25
arsenate , Cryst.....oz.	0.60
benzoate , U. S. P.....oz.	0.25
From True Benzoic Acid.....oz.	0.55
bi-chromate , C. P., Cryst.....oz.	0.25
borate , Pure.....oz.	0.60
carbazotate ,—see Ammonium Picrate.	
carbonate , Resublimed, C. P.....lb.	0.60
chloride ("MURIATE"), C. P., Gran'd..lb.	0.30
embelate . Excellent TÆNIFUGE. Dose: Children, 0.18 gramme ($2\frac{3}{4}$ grs.), in mixture with syrup or honey; adults, 0.36 gramme ($5\frac{1}{2}$ grs.) or more.	
	15 gr. 2.00
hydro-sulphuretted Solution of Sulphide.	
	lb. 0.70
molybdate , C. P.....oz.	0.45
muriate ,—see Ammon. Chloride.	
nitrate , C. P., Cryst., U. S. P.....lb.	0.75
oxalate , Pure.....lb.	1.25
C. P.....lb.	1.40
phosphate , C. P.....lb.	1.25
picrate.....oz.	0.45
salicylate , Cryst.....oz.	0.45
succinate , Pure, Cryst.....oz.	0.55
sulphate.....lb.	0.10
C. P.....lb.	0.50
sulpho-cyanate (RHODANIDE), Pure.	
	oz. 0.25
tartrate , Neutr., Cryst.....lb.	2.45
vanadate , C. P.....oz.	2.05
Amygdalin $\frac{1}{8}$ oz.	0.40
Amyl formate.....oz.	0.50
nitrate.....oz.	0.70
nitrite , Pure, U. S. P.....oz.	0.40
Amylene hydrate , (TERTIARY AMYLIC ALCOHOL; DI-METHYL-ETHYL-CARBINOL).— $C_8H_{12}O = (CH_3)_2C_2(C_2H_5)OH$.—Colorless liquid of ethereo-camphoraceous taste; sp. gr. 0.810; boil.-pt. $100^\circ C$ ($212^\circ F$). SOL.: 8 W.; miscible with A. in all prop. Eligible HYPNOTIC, without effect on the heart. Dose: 3-5 grammes (50-80 m), in beer, sweetened wine, flavored with Bitter-orange-peel Syrup or Licorice Extract, or in capsules.	
	oz. 0.65
Anemonin . Active principle of Anemone Pulsatilla.— $C_{15}H_{12}O_6$.—Colorless aciculate crystals, melting at $152^\circ C$ ($305.6^\circ F$). SOL.: easily in hot A., very sparingly in W., E. ANTISPASMODIC and SEDATIVE (Asthma, Whooping-cough, Bronchitis, etc.), ANODYNE (Dysmenorrhea, Epididymitis, etc.), etc. Dose: 0.02-0.05 gramme ($\frac{1}{4}$ - $\frac{3}{4}$ gr.) twice daily, in wafers, pills, or powders, containing Peppermint-oil Sugar. Max. Dose: single, 0.1 gramme ($1\frac{1}{2}$ grs.); daily, 0.2 gramme (3 grs.).....15 gr. 2.35	
Anethol , Liquid.....oz.	1.10
Antifebrin , C.P., Cryst., Perf. White. Max. Dose: single, 1 gramme (15 grs.); daily, 4 grammes (1 dr.).	
	oz. 0.35
Anthrarobin . Derivative of Alizarin. Yellowish-brown powder. SOL.: in 10 Glycerin, 10 cold and 5 hot A. Non-irritant Succedaneum for Chrysarobin in Skin Diseases. APPLIC.: in 10% oint. or solut.....oz.	0.70

Antimony. ANTIDOTES to Antimonial Compounds: Tannic Acid in solution, freely; stimulants, demulcents, warmth.

metallic.....lb. 0.50

arsenate.....oz. 0.40

chloride (Antimonious), Pure, Cryst...oz. 0.30

diaphoretic,—see Potassium Antimonate.

oxide, White, True.....lb. 0.80

sulphide, Precip., Pure, U. S. P.....lb. 0.70

Red, (so-called "KERMES MINERAL").....lb. 1.45

Antipyrine.....oz. 1.90

Apiol, Fluid, Green. EMMENAGOGUE, ANTIPERIODIC, etc. Dose: Emmen., 0.15-0.5 gramme ($2\frac{1}{2}$ -8 $\frac{1}{2}$ m) 2 or 3 times daily, in capsules; Antip., 1-3 grammes (15-45 m).

oz. 0.75

Cryst., White. Stearoptene of Essential Oil of Parsley.— $C_{12}H_{14}O_4$.—White needles of a faint parsley odor, melting at $32^\circ C$ ($89.6^\circ F$). SOL.: in A., E., Fatty and Essential Oils. ACTION and USES: same as fluid Apiol. Dose: Emmen., 0.3 gramme (5 grs.) 2 or 3 times daily, in capsules. Max. Dose: single, 1 gramme (15 grs.); daily, 4 grammes (1 dr.).

15 gr. 0.35

Apo-codeine hydrochlorate.— $C_{18}H_{19}NO_2.HCl$.—Amorphous powder. SOL.: in W. EXPECTORANT, etc. (Chronic Bronchitis, etc.). Dose: 0.18-0.24 gramme (3-4 grs.) daily, in pills. INJ.: 0.01-0.03 gramme ($\frac{1}{8}$ - $\frac{1}{2}$ gr.) daily, in 2% solut.....15 gr. 4.35

Apo-morphine hydrochlorate.—Amorphous.

$\frac{1}{8}$ oz. 0.75

Cryst., C. P., U. S. P. Max. Dose: single, 0.01 gramme ($\frac{1}{8}$ gr.); daily, 0.05 gramme ($\frac{3}{4}$ gr.)... $\frac{1}{8}$ oz. 1.60

Arbutin, White, Cryst.—Glucoside from arbutus Uva Ursi (Bearberry). Bitter crystals. SOL.: easily in boiling W., less in cold W. and A.; alm. insol. in E. DIURETIC. Dose: 0.15-0.3 gramme ($2\frac{1}{2}$ -5 grs.) 3 or 4 times daily. Max. Dose: single, 1 gramme (15 grs.); daily, 4 grammes (1 dr.).....15 gr. 0.35

"Aristol" (DI-iodo-DI-THYMOL).....oz. 2.40

Arsenic (so-called "Metallic"), Cryst.....lb. 0.70

bromide. Max. Dose: 0.01 gramme ($\frac{1}{8}$ gr.).

oz. 0.60

chloride.....oz. 0.75

iodide, Pure, Cryst., U. S. P. Max. Dose; 0.01 gramme ($\frac{1}{8}$ gr.).....oz. 0.70

Asaprol (BETA-NAPHTHOL-ALPHA-MONO-SULPHONATE OF CALCIUM).— $(OH.C_{10}H_7.SO_3)_2Ca + 3H_2O$.—Whitish powder, decomp. near $50^\circ C$ ($122^\circ F$). SOL.: in $1\frac{1}{2}$ W., 3 A. ANTISEPTIC, ANTIRHEUMATIC, ANTITHERMIC, etc. (Diphtheria, Rheumatism, Gout, Typhoid Fever, Influenza, etc.). APPLIC: in 50% solut. Dose: 1-4 grammes (15-60 grs.) daily.

Asparagin..... $\frac{1}{8}$ oz. 0.25

Atropine alkaloid, Pure, Heavy, U. S. P. ANTIDOTES: Morphine, Pilocarpine; diffusible stimulants.

$\frac{1}{8}$ oz. 0.80

sulphate, White, Cryst., Neutral... $\frac{1}{8}$ oz. 0.60

valerianate..... $\frac{1}{8}$ oz. 1.45

Barium. ANTIDOTES to BARIUM SALTS: Sod. or Magnes. Sulphate.

carbonate, Precip., C. P.....lb. 1.30

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Barium chloride, C. P. Cryst.....lb. 0.50

iodide.....oz. 0.90

sulphide, Pure.....oz. 0.20

Bebeerine (BEBERINE; BIBIRINE; BUXINE) **alkaloid**.

—From the bark of *Nectandra Rodiæi* (Beebeerbark).— $C_{10}H_{21}NO_3$.—Yellowish-Brown, bitter powder. SOL.: in 5 Absol. A., 13 E., 6000 cold and 1800 hot W. Tonic (General Debility, Atonic Dyspepsia, etc.), FEBRIFUGE (Periodic Headaches, Neuralgias, etc.), etc. DOSE: Ton., 0.05-0.1 gramme ($\frac{3}{4}$ -1½ grs.) 3-4 times daily; Febr., 0.3-0.6 gramme (5-10 grs.).oz. 4.05

sulphate, Dark-brown scales. SOL.: easily in W., A. ACTION AND DOSE: same as the alkaloid.

oz. 4.05

Benz-anilide (PHENYL-BENZ-AMIDE). — $C_6H_5.NH.CO.C_6H_5$.—White Powder. SOL.: in 58 cold, 7 hot A.; almost insol. in W. Children's ANTIPYRETIC. DOSE: 0.1-0.6 gramme ($\frac{1}{2}$ -9 grs.), ages 1-12. MAX. DOSE: 3.2 grammes (48 grs.) daily.....oz. 1.25

Benzene (BENZOL), C. P.—Max. DOSE: single, 1 gramme (16 ⅓); daily, 6 grammes (100 ⅓).....lb. 1.20

Benzoyl-Guaiacol (GUAIACOL BENZOATE; "BENZOSOL"). — $C_6H_4.OCH_3.OCOC_6H_5$.—Colorless powder, melting at 56-58° C (132.8-136.4 F). SOL.: in C., E., A.; insol. in W. Internal ANTISEPTIC, in Phthisis, etc. DOSE: 0.25 gramme ($\frac{3}{4}$ grs.), increasing to 0.8 gramme (12 grs.), 3 times daily, in powders, with Peppermint-oil Sugar.oz. 3.35

Berberine alkaloid, C. P., Cryst.....oz. 6.70

hydrochlorate. Max. DOSE: single, 0.06 gramme (1 gr.); daily, 0.25 gramme (4 grs.).....oz. 2.45

sulphate.....oz. 1.65

Betol ("NAPHTHALOL"; "NAPHTHO-SALOL"; "SALINAPHTHOL"; BETA-NAPHTHOL SALICYLATE).— $C_6H_4(OH)CO_2.C_{10}H_7$.—White, inodorous, insipid powder, melting at 95° C (203 F). SOL.: in 3 boiling A., E., Benzene; slightly in cold A.; almost insol. in W. or Glycerin. Internal ANTISEPTIC, ANTIZYMOTIC, etc. (Putrid Processes of the intestinal Tract, Cystic Catarrhs, etc.), like Salol. DOSE: 0.2-0.5 gramme ($\frac{4}{2}$ -7½ grs.) 4 times daily, in wafers.....oz. 0.80

Bismuth acetate.....oz. 0.75

nitrate, Cryst. (BISMUTH TER- or TRI-NITRATE). SOL.: in Glycerin, forming a solut. which, when recently made, is miscible with W. without being precipitated; decomposed by W. and heat. ASTRINGENT (Phthisical Diarrhoea, etc.). DOSE: 0.3 gramme (5 grs.).....oz. 0.45

oxy-iodide (so-called "SUB-IODIDE"). — Bi OI.—Brownish-red, amorphous, inodorous, insoluble powder. External and internal ANTISEPTIC (suppurating Wounds, Ulcers, Gonorrhoea, etc., Gastric Ulcerations, Typhoid Fever, etc.). APPLIC.: pure (in Gonorrhoea, in 1% mixture). DOSE: 0.3-0.6 gramme ($\frac{4}{2}$ -9 grs.) daily.....oz. 0.60

salicylate, Basic, free fr. Sub-nitrate (64%). Whitish, odorless, tasteless, permanent, microcrystalline powder. SOL.: in Acids and Alkalis with decomposition; insol. in W., A., E. Internal ASTRINGENT, ANTIFERMENTATIVE and DISINFECTANT, specially serviceable in Gastro-intestinal Affections of Children, Typhoid Fever, Phthisical Diarrhoea, etc. DOSE (Adult): 0.25-0.3 gramme (4-6 grs.) every 2 hours, in wafers, with milk, sugar or in "shake" mixture; children, 0.03-0.06 gramme ($\frac{1}{2}$ -1 gr.).....oz. 0.50

Bismuth, sub-benzoate.....oz. 0.60

sub-gallate (so-called "DERMATOL").— $Bi C_7H_7O_7$.—Odorless, saffron-yellow powder, containing 55% of Bism. Oxide. INSOL. in W., A., E., C. Non-irritant and non-toxic external SICCATIVE ANTISEPTIC (Wounds, Burns, Weeping Eczemas, Ulcers, etc.); Succedaneum for Bismuth sub-Nitrate, internally (Gastro-intestinal Affections). APPLIC.: like Iodoform. DOSE: 2 grammes (30 grs.) daily.....oz. 0.70

tannate.....oz. 0.45

valerianate.....½ oz. 0.15

Boro-glycerin, Dry.....oz. 0.30

Bromine chloride.....oz. 1.00

Bromoform, C. P.— $CHBr_3$.—Colorless liquid; sp. gr. 2.830 at 0° C. SOL.: in A. GENERAL ANESTHETIC, ANTISPASMODIC, etc. Recently lauded also in Whooping-cough. DOSE (3-4 times daily); age, under 1 yr., 1-3 drops; 1-4 yrs., 4-5 drops; 5-7 yrs., 6-7 drops.oz. 0.60

Brucine alkaloid, Pure. ANTIDOTES—see Strychnine.½ oz., 0.30

hydrobromate.....½ oz. 0.30

hydrochlorate.....½ oz. 0.30

nitrate.....½ oz. 0.30

sulphate.....½ oz. 0.30

Cadmium iodide.....oz. 0.60

sulphate, Pure.....oz. 0.40

Caffeine alkaloid, Pure, Cryst., U. S. P.oz. 0.50

citrate, so-called.....oz. 0.50

di-iodide hydro-iodate, (so-called "CAFFEINE TRI-IODIDE"). — $(C_8H_{10}N_4O_2I_2.HI)_2 + 3H_2O$.—Dark green prisms. SOL.: in A. Non-de-pressant IODIDE readily liberating Iodine in the stomach. DOSE: 0.12-0.24 grammes (2-4 grs.).....½ oz. 0.45

hydrobromate (BROMIDE), True Salt, Cryst.oz. 0.80

hydrochlorate ("Muriate"), True Salt, Cryst.oz. 1.10

nitrate, True Salt, Cryst.....½ oz. 0.25

salicylate, True Salt.....½ oz. 0.20

sulphate, True Salt, Cryst.....½ oz. 0.20

valerianate, True Salt.....½ oz. 0.20

Caffeine and Soda, benzoate.....oz. 0.75

salicylate.....oz. 0.75

Calcium benzoate.....oz. 0.45

carbonate, Prec.....lb. 0.25

chloride, Pure, Fused.....lb. 1.10

Grand.....lb. 0.60

Pure, Dry, White.....lb. 0.60

hypo-phosphite.....oz. 0.20

iodide.....oz. 0.60

lactate, Pure, Soluble.....oz. 0.40

lacto-phosphate, Soluble, Cryst...oz. 0.40

Powd.....oz. 0.30

nitrate, Pure.....oz. 0.35

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Calcium phosphate , Precip.....lb.	0.45
phosphideoz.	0.65
saccharateoz.	0.40
salicylateoz.	0.60
sulphate , Pure.....lb.	0.80
sulphide , U. S. P.....oz.	0.15
sulpho-carbolate (-PHENATE).....oz.	0.20

Camphor, mono-bromated, U. S. P.
oz. 0.35

Cannabine tannate. Yellow or brownish powder of a slightly bitter but strongly astringent taste. SOL.: little in W., A. or E.; more so in acidulated W., quite readily in acidul. A. Admirable HYPNOTIC and SEDATIVE (Hysteria, Nervousness, etc.). DOSE: 0.25-0.5 gramme (4-8 grs.) at bedtime, in a powder with sugar. Max. Dose: single, 1 gramme (15 grs.); daily, 2 grammes (30 grs.).....15 gr. 0.35

Carpaine hydrochlorate. Salt of Alkaloid from Carica Papaya (Melon-tree).— $C_{14}H_{27}NO_2.HCl$.—Colorless crystals. SOL.: freely in W. Succedaneum for Digitalin, specially adapted to HYPODERMATIC use, producing neither irritation nor abscess. INJ.: 0.006-0.01 gramme ($\frac{1}{10}$ - $\frac{1}{8}$ gr.) daily or every other day.
gr. 1.35

Cerium nitrate.....oz. 0.45

oxalate. Max. Dose: single, 0.3 gramme ($4\frac{1}{2}$ grs.); daily, 1 gramme (15 grs.).....oz. 0.20

Chloral-Ammonium (TRI-CHLOR-AMIDO-ETHYLIC ALCOHOL).— $CCl_3.CH.OH.NH_2$.—White powder, melting at about $64^\circ C$ ($147.2^\circ F$). SOL.: in A.; slightly in W. HYPNOTIC, ANALGETIC. DOSE: 1-2 grammes (15-30 grs.).....oz. 2.00

Chloral hydrate. ANTIDOTES: Strychnine or Atropine hypodermically; stimulants, Oxygen.

hydrate, Butyl-. Max. Dose: single, 1 gramme (15 grs.); daily, 4 grammes (1 dr.).....oz. 0.75

hydrate, Croton-,—so-called,—see Chloral Hydrate, Butyl-.

hydrocyanate. White, rhombic prisms, of the odor of HCN and Chloral, and melting bet. $60-65^\circ C$ ($140-149^\circ F$). SOL.: in W., A., E. Highly stable substitute for Bitter-almond and Cherry-laurel Waters; 1 part in 160 of distilled W. corresponds to Bitter-almond Water of the Ph. G.; 6.46 parts Chloral Hydrocy. correspond to 1 Anhydrous HCN.

$\frac{1}{8}$ oz. 0.20

Chloral-imide (not "Chloral-amide").— $CCl_3CH:NH$.—Colorless, inodorous, insipid needles, melting at $160^\circ C$ ($330.8^\circ F$). SOL.: readily in A., E., C. Oils; insol. in W. HYPNOTIC. DOSE: same as of Chloral hydrate.
oz. 8.00

Chrysarobin, U. S. P.—Max. Dose: single, 0.005 gramme ($\frac{1}{2}$ gr.); daily, 0.015 gramme ($\frac{3}{4}$ gr.)....oz. 0.40

Cinchonidine salicylate.....oz. 0.55

sulphate, U. S. P.....oz. 0.20

Cinchonine iodo-sulphate (so-called "ANTISEPTOL"). Reddish-brown powder. SOL.: in A., C.; insol. in W. Succedaneum for Iodoform.
oz. 2.00

Cinnabar,—see Mercury sulphide, Red.

Cocaine alkaloid..... $\frac{1}{8}$ oz. 1.50

hydrochlorate, C. P., Cryst., Perf. White. Max. Dose: single, 0.15 gramme ($2\frac{1}{4}$ grs.); daily, 0.5 gramme ($7\frac{1}{2}$ grs.)..... $\frac{1}{8}$ oz. 1.10

Cocaine phenate (CARBOLATE). Viscid, yellowish mass. SOL.: in A.; insol. in W. Local ANÆSTHETIC, ANALGESIC, ANTICATARRHAL, etc., (Dental Operations, Rheumatic Pains, Conjunctival, Nasal, Gastric and other Catarrhs). APPLIC.: in 1-3% solut. (in 30% A.), 5% powder, or pure. DOSE: 0.005-0.01 gramme ($\frac{1}{2}$ - $\frac{1}{8}$ gr.), 1-2 times daily, in capsules. INJ.: 1 gramme (16 m) of a 1 : 1250 solut. in A.....15 gr. 1.35

Codeine alkaloid, Cryst., U. S. P.—ANTIDOTES: see Morphine..... $\frac{1}{8}$ oz. 0.90

hydrochlorate ("MURIATE")..... $\frac{1}{8}$ oz. 0.75

nitrate..... $\frac{1}{8}$ oz. 0.75

phosphate..... $\frac{1}{8}$ oz. 0.90

sulphate..... $\frac{1}{8}$ oz. 0.75

Colchicine, C. P., Cryst.—DOSE: 0.0005-0.002 gramme ($\frac{1}{120}$ - $\frac{1}{30}$ gr.) 2-3 times daily. ANTIDOTES: stimulants.
15 gr. 0.75

Coniine (CONICINE; CICUTINE) alkaloid.— $C_8H_{17}N$.—ANTIDOTES: Atropine, Strychnine, Picrotoxin, stimulants..... $\frac{1}{8}$ oz. 1.00

hydrobromate, Cryst.—Colorless prisms. SOL.: in 2 W., 2 A., C., E. ANTISPASMODIC, ANTINEURALGIC, etc. (Tetanus, Sciatica, etc.). Recently lauded in Whooping-cough. DOSE: children, 0.0001-0.0015 gramme ($\frac{1}{1000}$ - $\frac{1}{400}$ gr.), 2-4 times daily; adults per os, 0.002-0.004 gramme ($\frac{1}{50}$ - $\frac{1}{25}$ gr.), 3-5 times daily. Max. Dose: children, single, 0.00075-0.00125 gramme ($\frac{1}{800}$ - $\frac{1}{640}$ gr.); daily, 0.003-0.005 gramme ($\frac{3}{200}$ - $\frac{1}{40}$ gr.); adults, single, 0.005 gramme ($\frac{1}{20}$ gr.); daily, 0.03 gramme ($\frac{1}{2}$ gr.). INJ.: adults, 0.003-0.004 gramme ($\frac{1}{80}$ - $\frac{1}{20}$ gr.). In Traumatic Tetanus, 0.01 gramme ($\frac{1}{8}$ gr.) by Inj., or 0.005 gramme ($\frac{1}{20}$ gr.) by mouth, may be given every 2 hrs., by exception!

15 gr. 0.70

Powd.....15 gr. 0.70

Convallamarin.— $C_{23}H_{44}O_{12}$.—White, bitter powder. SOL.: freely in W., A.; insol. in C., Amyl. A., almost so in E. Powerful non-cumulative HEART-TONIC, like Digitalin. DOSE: 0.05-0.06 gramme ($\frac{3}{4}$ -1 gr.) every 1-2 hrs. INJ.: 0.02-0.05 gm. ($\frac{1}{2}$ - $\frac{3}{4}$ gr.). Max. Dose: single, 0.06 gramme (1 gr.); daily, 0.3 gramme ($4\frac{1}{2}$ grs.).....15 gr. 1.00

Convallarin.....15 gr. 0.80

Copper. ANTIDOTES TO COPPER COMPOUNDS: Albumen, Pure Potassium Ferro-cyanide.

acetate, Pure, Cryst.....oz. 0.20

aluminated, (so-called "LAPIS DIVINUS")
lb. 1.00

ammoniated.....lb. 1.00

arseniate.....oz. 0.45

arsenite.....oz. 0.40

sulphate, C. P., Neutral, U. S. P.....lb. 0.55
Caustic Pencils.....doz. 1.35
Mounted on wood.....doz. 4.70

tartrate.....lb. 2.10

Coronillin.—Glucoside from Coronilla scorpioides.— $C_{11}H_{12}O_5$.—Amber-yellow, very bitter powder. SOL.: in W., A., difficultly in C., E. HEART-TONIC, like Digitalis. DOSE: 0.2 to 0.3 gramme (3-4 $\frac{1}{2}$ grs.)

Cotoin, true. Max. Dose: single, 0.08 gramme ($1\frac{1}{4}$ grs.); daily, 0.5 gramme ($7\frac{1}{2}$ grs.).... $\frac{1}{8}$ oz. 2.35

para-, Com'l.....15 gr. 0.50

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Creasote, Pure, from Coal-tar.....oz. 0.15
From Beech-wood, Ph. G. III. Sp. gr. not under 1.070 (the old Ph. G. II. was 1.030-1.080). Max. Dose, acc. to Ph. G. III. (double that of Ph. G. II.): single, 0.2 gramme (3 m); daily, 1 gramme (15 m). ANTIDOTES—see Acid. Carbolic. N. B.—Beech-tar Creasote is the only kind of Creasote permissible for internal use.
oz. 0.40

Creolin-Pearson. Dark-brown, syrupy liquid, sp. gr. 1.040-1.080. SOL.: in W. (to 2½%), A., E., C. External and Internal ANTISEPTIC, DEODORANT, etc.; non-poisonous Succedaneum for Carbolic Acid. APPLIC.: mostly in ½-2% solut., sometimes undiluted. Dose: 0.03-0.3 gramme (½-5 m) 3 times a day, in pills.
lb. 0.70

Cresalol, para- (PARA-CRESYLIC ETHER OF SALICYLIC ACID).— $\text{C}_6\text{H}_4\text{OH.COO.C}_6\text{H}_4\text{CH}_3$.—Whitish powder. Intestinal ANTISEPTIC, etc. Dose: 0.25-2 grammes (¾-30 grs.) daily, in wafers.....oz. 2.35

Croton-Chloral hydrate,—see Chloral Hydrate, Butyl-.

Cubebin.....½ oz. 1.05

Cumarin.....oz. 3.50

Curare, Tested for Efficacy.....15 gr. 1.00

Curarine, C. P., free from Curine. ANTIDOTES: strychnine and Atropine; artificial respiration, stimulants.
5 gr. 4.35

Daturine, Pure, Cryst. Max. Dose: single, 0.001 gramme (⅓ gr.); daily, 0.003 gramme (⅔ gr.)
5 gr. 1.00

hydrochlorate.....5 gr. 1.00

sulphate.....5 gr. 1.00

Diastase of Malt, (MALTIN). Tasteless powder. SOL.: in W., dil. A.; insol. in absol. A. DIGESTIVE. Dose: 0.05-0.15 gramme (¾-2½ grs.), several times daily, alone or with Pepsin.....oz. 2.05

Diaphtherin,—see Oxy-quin-aseptol.

Digitin (so-called "CRYSTALLIZED DIGITALIN").
5 gr. 0.80

Digitalin, Germanic, Pure.—White powder. SOL.: freely in W., A.; insol. in E., C. Non-cumulative HEART-TONIC, admirably adapted to subcutaneous injection, being very soluble and non-irritant. Dose: 0.001-0.002 gramme (⅓-⅓ gr.) 3 or 4 times daily. Max. Dose: single, 0.004 gramme (⅓ gr.); daily, 0.02 gramme (⅓ gr.). ANTIDOTES: Tannic Acid; Nitroglycerin in the early stages, Strophanthin later; alcoholic stimulants, rest.....½ oz. 0.50

Di-iodo-beta-naphthol. Yellowish-green, odorless, tasteless powder. SOL.: very in C., scarcely in A., partially in E. ANTISEPTIC, like Aristol. Therapeutic data yet wanting.

Di-iodo-thio-resorcin. Brown, amorphous powder. SOL.: in A.; insol. in W. Siccative ANTISEPTIC, like Aristol. Definite therapeutical data yet wanting.

"Diuretin,"—see Theobromine-Sodium and Sodium, Salicylate.

Dover's Powder, U. S. P.....lb. 1.50

Duboisine sulphate, Amorph.— $(\text{C}_{17}\text{H}_{23}\text{NO}_3)_2\cdot\text{H}_2\text{SO}_4$.—Yellowish, hygroscopic powder. Cardiac and Respiratory STIMULANT, ANTISPASMODIC, MYDRIATIC, etc., like Atropine, but much stronger; used principally as a Mydriatic. APPLIC.: in aq. solut. (1-4:480). Dose: 0.0002-0.0004 gramme (⅓-⅓ gr.) 2-3 times daily. Max. Dose: single, 0.001 gramme (⅓ gr.); daily, 0.003 gramme (⅔ gr.). ANTIDOTES: Pilocarpine, Muscarine.....5 gr. 1.00

Elaterin, Cryst.....15 gr. 1.70

Elaterium.....½ oz. 0.30

Emetine.....¼ oz. 0.90

Ergotin, Bonjean's.....oz. 0.55

Erythrophleine hydrochlorate. Yellowish, crystalline granules. SOL.: easily in W. Recently lauded as local ANESTHETIC; slower, but more intense in action, than Cocaine. APPLIC.: in ⅓-1% solut., as Collyrium or Inj.....5 gr. 1.70

Eserine (PHYSOSTIGMINE), C. P.—Alkaloid from Calabar Bean.— $\text{C}_{15}\text{H}_{21}\text{N}_3\text{O}_2$.—White, hygroscopic laminae. SOL.: poorly in W., readily in A., E., C. SPINAL DEPRESSANT, ANTITETANIC (Traumatic Tetanus, Tonic Convulsions, Strychnine-poisoning, etc.), PERISTALTIC STIMULANT (Atonic Conditions of the Intestine), ANALGETIC (Neuralgias, Muscular Rheumatism, etc.), MYOTIC. Dose: 0.0003-0.0006 gramme (⅓-⅓ gr.) 2-3 times daily. Max. Dose: single, 0.001 gramme (⅓ gr.); daily, 0.003 gramme (⅔ gr.). Also a successful veterinary remedy (Colic of Horses and Beeves, etc.). Little used in its basic state, its salts being preferred. ANTIDOTES: Atropine, Chloral hydrate; artificial respiration, stimulants.....5 gr. 1.70

citrate.....gr. 0.30

hydrobromate, Cryst.....gr. 0.30

hydrochlorate.....5 gr. 1.20

nitrate.....gr. 0.30

salicylate.....5 gr. 1.20

sulphate.....5 gr. 0.95

tartrate.....gr. 0.30

Ether, benzoic, (ETHYL BENZOATE).....oz. 0.45

formic, (ETHYL FORMATE), Concent....oz. 0.35

hydriodic, (ETHYL IODINE).— $\text{C}_2\text{H}_5\text{I}$.—Clear, colorless, neutral, non-inflammable liquid; sp. gr. at 15° C (59 F), 1.930; boiling near 70° C (158 F), SOL.: freely in A., E.; nearly insol. in W. ALTERNATIVE ANTISPASMODIC, RESORBANT, etc. Dose: per os. (Chronic Rheumatism, Scrofula, Secondary Syphilis, etc.) 0.3-0.6-1 gramme (3-5-9 m), in capsules by inhal. (Chronic Bronchitis, Asthma, Chronic Laryngitis, etc.), 10-15 drops several times daily. Keep from air and light.
oz. 0.70

Ethyl bromide, (MONO-BROM-ETHANE; HYDROBROMIC ETHER), C. P.— $\text{C}_2\text{H}_5\text{Br}$.—Clear, colorless, volatile liquid; sp. gr. 1.445-1.450; boil.-pt. between 38-40° C (100.4-104 F). SOL.: in A., E.; insol. in W. Safe and prompt Inhalation. ANÆSTHETIC (especially adapted for minor operations), Nerve SENSITIVE (Epilepsy, Hysteria, etc.). Dose, per inhal.: 5-30 grammes (1-6 fl. drs.) by mask; internally, 5-10 drops, on sugar or in capsules. Keep from light and air.

oz. 0.45

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Ethyl chloride, (MONO-CHLOR-ETHANE).— $C_2H_5.Cl$.—Gas at ordinary temperatures; when compressed, colorless liquid, boiling between $10-12^\circ C$ ($50-53.6^\circ F$), and burning with green flame. Local ANÆSTHETIC (Minor and Dental Surgery, Neuralgias, etc.). APPLIC.: by spray, the heat of the hand causing it to issue as such from the tubes in which it is contained, which should be held 6-10 inches from the part to be anesthetized. N. B.—Very inflammable!.....10 gm. 1.00

Ethylene bromide, (DI-BROM-ETHANE). Slightly brownish, emulsifiable fluid; sp. gr. 2.163 at $21^\circ C$. SOL.: in A.; insol. in W. ANTI-EPILEPTIC. DOSE: 0.1-0.3 gramme ($\frac{3}{4}$ -2 μ), 2-3 times daily, in emulsion or capsules.....oz. 1.00

Eucalyptol. Rectified and purified Oil of Eucalyptus Globulus. Thin, nearly colorless liquid, with a strong camphoraceous odor and a pungent, spicy, cooling taste. SOL.: very in A., slightly in W. ANTISPASMODIC (Asthma, by inhal.), ANTIPERIODIC, NERVINE (Migraine, etc.), Surgical and Inhalation ANTISEPTIC (Wounds, Diphtheria, Chronic Bronchitis, etc.). DOSE: 0.6-0.9 gramme (10-15 μ), in capsules, sweetened emulsions, or on sugar.....oz. 0.60
C. P., Perfect. Limpid.....oz. 0.75

Eugenol, boil.-pt. $247^\circ C$oz. 0.65

"Euphorin" (PHENYL-ETHYLIC UR-ETHANE; CARBAMATE OF ETHYL AND PHENYL).— $COO.C_2H_5.NH.C_6H_5$.—White powd. SOL.: in A., poorly in W. ANTIPYRETIC, RHEUMATIC PALLIATIVE, ANODYNE, etc.; Surgical ANTI-SEPTIC (Ulcers, etc.). APPLIC.: pure. DOSE: 0.5-1 gramme ($7\frac{1}{2}$ -15 grs.), 2-3 times daily....oz. 2.35

"Exalgin" (METHYL-PHENYL-ACET-AMIDE).— $C_6H_5.N.CH_3.C_2H_5O$.—White, odorless and tasteless needles or tablets, melting at about $101^\circ C$ ($214^\circ F$). SOL.: slightly in cold W., more so in hot; easily in A., dil. A. ANALGESIC (Neuralgia, etc.). DOSE: 0.25-0.4 gramme ($3\frac{3}{4}$ -6 grs.), not oftener than twice in 24 hrs., in alcoholic syrupy mixture, or in wafers.....oz. 1.90

Extract, apple, Ferrated, (CRUDE MALATE OF IRON), PH. G. III.....lb. 0.90

licorice, soft, Perf. Clearly Sol.....lb. 0.90

male fern, U. S. P.....oz. 0.35

malt, Dry, Powder.....lb. 2.00

monesia-bark, Aq., Dry. ASTRINGENT, STOMACHIC, EXPECTORANT, etc. (Chronic Diarrhoea, Bronchitis, etc.). DOSE: 0.15-0.3 gramme ($2\frac{1}{2}$ -5 grs.) every 2 hrs., in aqueous solut.....oz. 0.55

"Fusel Oil,"—see Alcohol, Amylic, Primary.

Gall, Ox-, inspiss., U. S. P.....oz. 0.20

Gelsemin—a Resinoid.....oz. 3.35

Gelseminine alkaloid, C. P., Cryst. ANTIDOTES: Atropine, Strophanthin, artificial respiration, external stimulation.....15 gr. 3.35

hydrobromate, Amorph.....15 gr. 3.35

hydrochlorate, Amorph.....15 gr. 3.35
Cryst., White.....15 gr. 3.35

nitrate, Amorph.....15 gr. 3.35

sulphate, Amorph.....15 gr. 3.35

Glass-wool, For filters.....oz. 2.00

Glutin-peptone-sublimate (MERCURY GLUTINO-PEPTONATE, HYDROCHLORATED) **solution**. Colorless, non-corrosive liquid, containing 1% $Hg Cl_2$. Prompt Hypodermic ANTISYPHILITIC. INJ.: 1 gramme (16 μ).....oz. 1.00

Glycyrrhizin, ammoniated, U. S. P.....oz. 0.40

Gold bromide, mono-.—Au Br.—Yellowish-gray, friable mass. Insol. in W. ANTIEPILEPTIC, ANODYNE (Migraine, etc.). DOSE: ANTI-EP., 0.008-0.012 gramme ($\frac{1}{16}$ - $\frac{1}{8}$ gr.); ANOD., 0.003 gramme ($\frac{1}{16}$ gr.); twice daily, in water.....5 gr. 1.20

bromide, tri-.—Au Br₃.—Sol.: in W. ACTION, DOSE, etc.: like the Mono-Bromide.....5 gr. 1.00

cyanide, mono-. Yellow powder. Insol. in W., A., E. ANTITUBERCULAR. DOSE: 0.004-0.016 gramme ($\frac{1}{16}$ - $\frac{1}{4}$ gr.) several times daily, in troches.
5 gr. 1.35

cyanide, tri-.—Au (CN)₃ + 3 H₂O.—Large, Colorless, tabulated crystals. SOL.: in W., A. ANTITUBERCULAR. Used like the Cyanide.....15 gr. 3.70

Guaiacol (MONO-METHYL-CATECHOL; METHYL-ETHER OF PYRO-CATECHIN), C. P., for med. use.— $C_6H_4.OH.OCH_3$.—Colorless, limpid, oily liquid of a peculiar aromatic odor; sp. gr. at $13^\circ C$ ($55.4^\circ F$), 1.117; boil.-pt., $201^\circ C$ ($393.8^\circ F$). SOL.: in 200 W., A., E., CS₂. Sovereign ANTITUBERCULAR. DOSE: 0.1 gramme ($1\frac{1}{2}$ μ) gradually increased to 0.3 gramme (5 μ), after meals, in vinous solut., or with Cod-liver Oil.....oz. 1.15

Guaiacol carbonate.— $CO(OC_6H_4OCH_3)_2$.—Odorless, tasteless, neutral, crystalline powder, melting between $86-90^\circ C$ ($186.8-194^\circ F$). Insol. in W. Agreeable ANTITUBERCULAR. DOSE: 0.2-0.5 gramme ($3-7\frac{1}{2}$ grs.), once or twice daily, gradually increased to 6 grammes (90 grs.) daily, if necessary....oz. 3.35

salicylate, (GUAIACOLIC SALOL).— $C_6H_4.COO.CH_4.OCH_3.OH$.—White, insipid, odorless crystals, melting at about $65^\circ C$ ($149^\circ F$). SOL.: in A.; insol. in W. Intestinal ANTISEPTIC, like Salol..... $\frac{1}{4}$ oz. 0.75

Hæmogallol. Reduction-product of Hæmatin. Reddish-brown powder. Very absorbable HÆMATINIC (Chlorosis, Anæmia, etc.), unusually well-borne, and very easily transformed into the blood-coloring-matter by the organisms of debilitated individuals. DOSE: 0.1-0.5 gramme ($1\frac{1}{2}$ - $7\frac{1}{2}$ grs.) 3 times daily, $\frac{1}{4}$ hr. before meals, in wafers or Japanese bibulous paper ("Usego").....oz. 3.35

Hæmol. Reduction-product of Hematin. Blackish-brown powder. ACTION, DOSE, etc.; same as Hæmogallol.
oz. 1.75

Helenin, Cryst., White.—Solid Alant, or Elecampane, or Inula-camphor. SOL.: in hot A., E., Oils. ANTICATARRHAL (Chronic Bronchitis, Phthisis, coughs with pain, etc.). ANTISEPTIC (Diphtheria, etc.). DOSE: 0.01 gramme ($\frac{1}{8}$ gr.) 10 times daily, in pills. APPLIC.: in 2% oily solution.....15 gr. 0.70

Hæmatoxylin..... $\frac{1}{8}$ oz. 0.60

Hom-atropine (OXY-TOLUOL-TROPINE) **alkaloid**, Cryst. Artificial alkaloid from Tropine Mandelate.— $C_{16}H_{21}NO_3$.—Colorless, very hygroscopic crystals. SOL.: slightly in W. ACTION: like Atropine, but weaker. Little used on account of its hygroscopicity and insolubility.....5 gr. 3.00

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Hom-atropine hydrobromate, Cryst.—White, non-hygroscopic leaflets. SOL.: in 10 W. Used chiefly as a MYDRIATIC, being less irritating, less liable to produce systematic disturbance, and less persistent than Atropine. APPLIC.: in 1% solut....5 gr. 2.50

hydrochlorate, Cryst.....5 gr. 3.00

salicylate.....5 gr. 3.00

sulphate, Cryst. Max. Dose: single, 0.03 gramme ($\frac{1}{2}$ gr.); daily, 0.24 gramme (4 grs.)..15 gr. 7.35

Hydrastine alkaloid, C. P., Cryst.— $C_{21}H_{21}NO_8$.—Yellowish-white crystals. SOL.: easily in A., E., C., Benzene; alm. insol. in W. ALTERATIVE, TONIC, ANTIPERIODIC, etc. Not used externally on account of its insolubility. Dose: 0.015–0.03 gramme ($\frac{3}{4}$ – $\frac{1}{2}$ gr.). 15 gr. 0.55

hydrochlorate, C. P., Cryst. Light-yellow, crystalline powder. SOL.: readily in W. Efficacious ASTRINGENT (Gonorrhœa, Conjunctivitis, Leucorrhœa, etc.), DERMIC (Hyperidrosis, Acne, Seborrhœa, etc.), etc. APPLIC.: Astr., in $\frac{1}{10}$ – $\frac{1}{5}$ % solut.; Derm., in 1% oint. or lotion.....15 gr. 0.55

sulphate, C. P.....15 gr. 0.55

Hydrastinine hydrochlorate. Salt of artificial alkaloid from Hydrastine.— $C_{11}H_{11}NO_2.HCl$.—Lemon-yellow, hygroscopic crystals. SOL.: in W. Uterine HEMOSTATIC, VASO-CONSTRICTOR, etc. (Hæmorrhages, Congestive Dysmenorrhœa, Metrorrhagia, etc.). Dose: 0.025 gramme ($\frac{3}{8}$ gr.) 4 or 5 times daily, with sugar, in capsules. INJ.: $\frac{1}{2}$ –1 c.c. (8–16 m.) of a 10% solut. once daily.....15 gr. 1.70

Hydrogen per-oxide, Com'l.....lb. 0.50
Medicinal... ..lb. 0.65

Hydro-quinone (PARA-DI-OXY-BENZENE; QUINOL), C. P.— $CH_4(OH)_2$.—SOL.: in 17 W.; easily in A., E., hot W. ANTISEPTIC and ANTIPYRETIC, like Resorcin. APPLIC.: In 1–3% solut. (Conjunctivitis, Gonorrhœa, etc.). Dose: Antipyr., 1 gramme (15 grs.), in wafers or capsules; children, 0.05–0.5 gramme ($\frac{3}{4}$ – $7\frac{1}{2}$ gr.). INJ.: $\frac{1}{2}$ as much, in 10% solut. Also lauded as the best photographic DEVELOPER. Keep solut. from air and light. oz. 0.55

Hydroxyl-amine hydrochlorate.— $NH_2OH.HCl$.—Colorless crystalline plates. SOL.: in W., A. DERMIC, like Chrysarobin and Pyro-gallic Acid. APPLIC.: In $\frac{1}{10}$ – $\frac{1}{5}$ % solut. Also used as a photographic DEVELOPER.....oz. 1.30

Hyoscine hydrobromate, Cryst.— $C_{17}H_{23}NO_3.HBr$.—SOL.: in W.; insol. in strong A., E.—HYPNOTIC and SEDATIVE. (Insanity, Chorea, Alcoholic Tremor, etc.); ANTAPHRODISIAC, ANTISIALAGOGUE, MYDRIATIC, etc. Little used externally. Dose.: Hypn. (in Insanity), 0.002 gramme ($\frac{3}{10}$ gr.); sedat., 0.0004–0.0006 gramme ($\frac{1}{100}$ – $\frac{1}{100}$ gr.). INJ.: Hypn., 0.0005–0.001 gramme ($\frac{1}{100}$ – $\frac{1}{100}$ gr.); sedat., 0.0002–0.0003 gramme ($\frac{1}{100}$ – $\frac{1}{100}$ gr.). ANTIDOTES—see Atropine.....5 gr. 2.70

hydrochlorate, Cryst. SOLUBILITY, ACTION, DOSE, etc.: same as hydrobromate.....5 gr. 2.70

hydro-iodate, Cryst. SOLUBILITY, ACTION, DOSE, etc.: same as hydrobromate.....5 gr. 2.70

sulphate, Cryst.....5 gr. 2.80

Hyoscyamine alkaloid, C. P., Cryst.— $C_{17}H_{23}NO_3$.—White, silky, permanent crystals, melting at 108.5° C (227.3 F). SOL.: little in W.; readily in acidul. W., A., E., C. ACTION: like Atropine, but employed chiefly as HYPNOTIC (Mental Disorders), ANODYNE, ANTISPASMODIC (Asthma, Epilepsy, Colics, Corea, etc.). Dose (Anodyne and Antispasm): $\frac{1}{2}$ –1 milligr. ($\frac{1}{100}$ – $\frac{1}{100}$ gr.) in granules or solut. INJ. (Hypnotic; in the insane): 3–5 milligr. ($\frac{1}{20}$ – $\frac{1}{12}$ gr.). ANTIDOTES—see Atropine.....5 gr. 2.70
Pure, Amorph.....15 gr. 2.35

hydrobromate, Pure, Amorph....5 gr. 1.00

hydrochlorate, Pure.....5 gr. 1.50

hydro-iodate, Pure, Cryst., melt-pt. 154° C. 5 gr. 1.75

sulphate, Pure, Amorph.....5 gr. 1.50
C. P., Cryst.....5 gr. 2.70

“Hypnal” (CHLORAL-ANTIPYRINE; TRI-CHLOR-ALDEHYD-PHENYL-DI-METHYL-PYRAZOLONE). White, inodorous, tasteless, hygroscopic crystals, melting at 58–60° C (136–140 F). SOL.: in 5–6 W. HYPNOTIC in Insomnia caused by pain or cough, particularly in children. Dose (adult): $\frac{1}{2}$ –1 gramme ($7\frac{1}{2}$ –15 grs.). oz. 1.75

Ichthyol (AMMONIUM SULPHO-ICHTHYOLATE).— $C_{28}H_{36}S_3O_6(NH_4)_2$.—Thick, brownish liquid, containing 15% of easily assimilable Sulphur; sp. gr. 1.106. SOL.: in W., mixture of A. and E., Gl.; only partly sol. in pure A. or pure E.; freely miscible with Oils. ANTIPHLOGISTIC, ANODYNE, ALTERATIVE, etc., (Cutaneous Affections, Rheumatism, Scrofula, Inflammatory Diseases of Women, etc.). APPLIC.: in 5–50% oint., solut., etc. Dose: 0.2–0.6 gramme (3–10 m.) 3 times daily, well diluted, or in pills or capsules.....oz. 0.60

-sodium,—so-called, (SODIUM SULPHO-ICHTHYOLATE). oz. 0.70

Iodine, C. P.—ANTIDOTES: Starch; anodynes, demulcents.

bromide.....oz. 1.10

chloride.....oz. 1.05

tri-chloride.—Orange-yellow, volatile, hygroscopic, powder or plates, of a very pungent and irritating odor; decomposed by heat. SOL.: in W., A., Benzene. Efficient External and Internal ANTISEPTIC, DISINFECTANT, and ANTIZYMOTIC (Ulcers, Cutaneous Diseases, Gonorrhœa, Fermentative Dyspepsia, etc.). APPLIC.: in 1:1000–1200 solut. Dose: 4 grammes (1 fl. dr.) of a 1:1000 solut. Max. Dose: single, 0.012 gramme ($\frac{1}{8}$ gr.); daily, 0.08 gramme ($1\frac{1}{4}$ gr.). Keep from light and air.....oz. 1.30

Iodoform, Cryst. or Powd.—DEODORANTS: Creolin-Pearson (1–2: 100), Cumarin or Menthol.

“de-odorized” (Aromatized).....oz. 0.85

bituminized.—Translucent, brown scales, of a faint, tar-like odor. ACTION, USES, etc.: like Iodoform.....oz. 1.00

Iodole (TETRA-IODO-PYRROLE).— C_4I_4NH .—Grayish-brown, inodorous powder, consisting of 88.97% Iodine. SOL.: in 3 A., 1 E., 5,000 W., 15 Oil. Nontoxic Succedaneum for Iodoform. Very attenuable from its lightness and fineness. APPLIC.: like Iodoform. Dose: 0.5–1.5–3 (!) grammes ($7\frac{1}{2}$ –23–45 (!) grs.) daily. oz. 1.70

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Iridin , Pure.—Max. Dose: single, 0.2 gramme (3 grs.); daily, 0.5 gramme (7½ grs.).....oz.	3.40
Iron, metallic , Finely Powdered (so-called "Alcoholized;" Limatura Martis Alcoholisata.....lb.	0.50
metallic, by hydrogen.....lb.	1.25
acetate (Ferric).....oz.	0.40
albuminate , Scales. SOL.: in W. Dose: ⅓ that of Solut. See below.....oz.	0.35
Solution. Efficacious and easily assimilable HEMATINIC (Anemia, etc), free from acidity, astringency and injuriousness to the teeth. Dose: ½-1 teaspoonful, 3 times daily ; children, 5 to 30 drops ....lb.	
	0.80
ammoniated —so-called — (IRON AND AMMONIUM, SULPHATE).....lb.	0.60
arseniate.....oz.	0.35
benzoate (25% per-oxide).....oz.	0.60
bromide (Ferrous).....oz.	0.25
carbonate , Precip.....lb.	0.25
Saccharated, U. S. P.....lb.	0.85
chloride , Normal, Cryst., U. S. P.. .. oz.	0.15
chloride, proto-.....oz.	0.25
dialyzed , Liquid... ..lb.	0.45
Scales.....oz.	0.40
hypo-phosphite , U. S. P.....oz.	0.35
iodide , Cryst.....oz.	0.55
Saccharated, U. S. P.....oz.	0.60
lactate , Powd .....oz.	0.15
lacto-phosphate.....oz.	0.45
malate , Scales.....oz.	1.55
oxalate (Ferrous).....oz.	0.25
oxide , Saccharated, Soluble.....lb.	0.90
salicylate.....oz.	0.65
sub-sulphate , (MONSEL'S SALT), Pure. oz.	0.15
succinate . Amorphous, red-brown powder, insol. in W., A. SOLVENT of Biliary Calculi. Dose: Teaspoonful, after meals (10 drops C. are usually given at the same, 4 to 6 times daily).....oz.	0.85
sulphate , Pure, Precip. by Alcohol...lb.	0.40
sulphide (SULPHURET).....lb.	0.30
sulpho-carbolate (-PHENATE).....oz.	0.20
tannate.....oz.	0.40
valerianate , U. S. P.....oz.	0.40
Iron and magnesium, citrate , (MAGNESIO-FERROUS CITRATE).....oz.	0.20
and manganese, citrate , (MANGANO-FERROUS CITRATE).....oz.	0.45

Juice, Cineraria maritima . CURE FOR CATARACT. APPLIC.: by instillation, 2 drops, 3 times daily. ⅓ oz.	0.50
papaw , Dry.....oz.	2.00

Kefir Fungi.....oz.	1.35
Keratin (HORN-SUBSTANCE), Pepsinized.—White powder. SOL.: in Acetic Ac., Ammonia-water, Alkaline fluids; insol. in Pepsin, HCl. Used to COAT PILLS not intended to act until reaching the intestine....⅓ oz.	1.00
Kermes mineral ,—see Antimony Sulphide, Red.	
Koussein , Amorph. Active principle of Brayera. Yellowish-brown powder. SOL.: in A., E., C.; sparingly in W. ANTHELMINTIC. Dose: 3-4 grammes (45-60 grs.) dividedly in 3 or 4 doses, in wafers or in pills; children, half as much.....⅓ oz.	1.00

Lactucarium.....oz.	0.95
Lanolin.....lb.	1.15
Lantanine . Alkaloid from Lantana brasiliensis (Yerba Sagrada). White, bitter powder. ANTIPYRETIC and ANTIPERIODIC, similar to Quinine. Dose: 1-2 grammes (15-30 grs.) a day, in pills, immediately after a febrile attack.	
Lead . ANTIDOTES TO LEAD SALTS: Magnes. or Sod. Sulphate; later, Potass. Iodide.	
acetate , C. P., Cryst.....lb.	0.50
benzoate.....oz.	0.75
carbonate , Neutral, C. P.....lb.	1.30
iodide , Powd., U. S. P.....oz.	0.50
nitrate.....lb.	0.30
oxide , C. P., U. S. P.....lb.	1.45
Lime (CALX), U. S. P.....lb.	0.50
Lithium acetate.....oz.	0.85
benzoate , U. S. P.....oz.	0.35
bromide , U. S. P.....oz.	0.35
carbonate.....oz.	0.35
chloride.....oz.	0.55
citrate , U. S. P.....oz.	0.35
iodide.....oz.	0.65
nitrate.....oz.	0.60
salicylate , C. P., U. S. P.....oz.	0.35
Lycopodium.....lb.	0.90

Magnesium, metallic , Powd.....oz.	0.60
benzoate.....oz.	0.55
boro-citrate , Powd.....oz.	0.25
bromide.....oz.	0.55
chloride , C. P.....lb.	0.90
hypo-phosphite , C. P., Cryst.....oz.	0.40
iodideoz.	0.85
nitrate , Pure.....oz.	0.20
oxide , Light, U. S. P.....lb.	0.90
Heavy, U. S. P.....lb.	0.95

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Magnesium phosphate , Neutral, Pure. oz.	0.25
salicylate , C. P., Cryst., Sol. oz.	0.75
silicate oz.	0.45
sulphate , Dried..... lb.	0.45
Cryst., C. P..... lb.	0.60
sulphite , U. S. P..... lb.	1.20
Manganese hypo-phosphite , C. P., Cryst. oz.	0.45
iodide oz.	1.10
per-oxide (BIN-OXIDE; DI-OXIDE). Artif., Pure. oz.	0.20
sulphate , Pure, Cryst., U. S. P..... oz.	0.15
Mannit lb.	2.70
Meconin $\frac{1}{8}$ oz.	0.85
Menthol , C. P., Recryst. Max. Dose: single, 1 gramme (15 grs.); daily, 5 grammes (75 grs.).... oz.	0.65
Cocking's, Dry..... oz.	0.50
Mercur-thymol acetate .— $C_{10}H_{13}OHg.HgCH_3CO_2$. —Colorless crystals. INSOL. in W. ANTISYPHILITIC for Intramuscular INJECTION: 0.1 gramme ($1\frac{1}{2}$ grs.) every 3-5 days, in Liquid Paraffin or Glycerin; 0.01 gramme ($\frac{1}{8}$ gr.) Cocaine may be added to each Inj. oz.	1.00
Mercury bi-chloride , Recryst., C. P.—Recently em- ployed by injection as a cure of cysts.	
chloride , (CALOMEL).—Should not be prescribed with Antipyrine, nor applied to mucous surfaces or wounds while potassium iodide is being taken internally.	
cyanide , Cryst., U. S. P. Max. Dose: single, 0.03 gramme ($\frac{1}{2}$ gr.); daily, 0.1 gramme ($1\frac{1}{2}$ gr.).	
salicylate .— $C_6H_4.COO.Hg$.—White, odorless, taste- less, neutral powder, containing 59% of Hg. SOL.: in solut. of Sod. Chloride; insol. in W., A. Internal and external ANTISYPHILITIC, ANTIGONORRHOIC, etc. AP- PLIC.: in 1% powder or oint. (Chancres, etc.), or in 1-5:10000 solut. (Gonorrhoea). Dose: 0.02-0.06 gramme ($\frac{1}{4}$ -1 gr.) 3 times daily, in pills. INJ.: 1-2 syringefuls of a liquid consisting of 2 Merc. Salicyl., 6 Acacia Mucil., 600 W., every 2-3 days..... oz.	0.65
sulphide , Red (Mercuric), (CINNABAR).—Recently used hypodermically (1:8 Sweet-almond Oil) against syphilis.	
tannate (Mercurous). Max. Dose: single, 0.1 gramme ($1\frac{1}{2}$ grs.); daily, 0.3 gramme ($4\frac{1}{2}$ grs.). oz.	0.50
Meth-acetin (PARA-ACET-ANISIDIN; ACETYL-METHYL- PARA-AMIDO-PHENOL). — $C_6H_4.OCH_3NH.C_2H_5O$.—Red- dish-white, odorless, crystalline powder, of faintly saline-bitterish taste; m. p., 127° C (260.6 F). SOL.: sparingly in W., easily in A. ANTIPYRETIC, princi- pally in Children's Diseases. Dose (child's): 0.15-0.3 gramme ($2\frac{1}{4}$ - $4\frac{1}{2}$ grs.)..... oz.	2.00
Methylal , Pure.— $CH_2(OCH_3)_2$ —Colorless liquid, with an odor similar to that of C., and a pungent taste; boil- pt. 42° C (107.6 F); sp. gr. 0.855. SOL.: in W., A., Oils. Local ANÆSTHETIC, NERVE-SEDATIVE (Delirium tremens, etc.), ANTISPASMODIC (Strychnine-poisoning, Tetanus, etc.), ANODYNE (Gastric and Intestinal Pains, etc.), etc. APPLIC.: as liniment (1:6 Sweet-almond Oil). Dose: 0.1 gramme ($1\frac{1}{2}$ m) every 2-3 hours., in 12-100 parts W. or Syrup..... oz.	1.35
Methylene bi-chloride oz.	0.95

Methylene Blue (TETRA-METHYL-THIONINE HYDRO- CHLORATE), C. P., Medicinal, for internal use.—Powder. SOL.: in about 50 W. ANODYNE (Neurotic Processes, Rheumatic Affections of muscles, joints, tendon- sheaths, etc.), ANTIPERIODIC (Malaria). Dose: 0.1- 0.25 gramme ($1\frac{1}{2}$ -4 grs.) several t. daily, in capsules. INJ.: 0.06 gramme (1 gr.)..... oz.	1.20
Mono-chlor-phenol . — $C_6H_4Cl.OH$. — Volatile fluid. Inhalation ANTISEPTIC (Ozena, Laryngitis, Bronchitis, etc., particularly Pulmonary Tuberculosis). oz.	2.35
Morphine , Pure, Cryst., U. S. P. ANTIDOTES.: Par- aldehyd with small doses of Picrotoxin, Atropine; artificial respiration, exercise.	
bi-meconate ,—see Meconate.	
meconate (BI-MECONATE).—White, crystalline pow- der. SOL.: easily in W. and 85% A. Reported to affect the stomach and head less than other morphine salts. Dose: 0.003-0.02 gramme ($\frac{1}{2}$ - $\frac{1}{3}$ gr.).	
phtalate .—Yellowish, grassy scales. SOL.: in 5 W. According to E. BOMBELON, the best salt of morphine for subcutaneous use, the injections being painless.	
tartrate .—a neutral salt, recommended specially for subcutaneous injections, on account of its solubility (1:10).	
Morrhuel .—Brownish-yellow, oily liquid, of a bitterish acid taste, containing the therapeutically active prin- ciples of cod-liver oil. ALTERATIVE TONIC (Phthisis, Scrofula, Rachitis, etc.) Dose: About $\frac{1}{2}$ that of Cod- liver Oil..... oz.	2.10
Muscarine nitrate 5 gr.	2.70
sulphate 5 gr.	2.70
Myrtol oz.	2.10
Napelline . One of the Alkaloids from Aconitum napel- lus. White powder. SOL.: in W., A., E. ANODYNE, ANTINEURALGIC, etc. (Lumbo-sciatic Neuralgia, Rheu- matic pains, etc.). Dose: 0.01-0.03 gramme ($\frac{1}{8}$ - $\frac{1}{2}$ gr.). 5 gr.	1.70
Naphthalene , C. P., for Internal Use, Cryst. and Pow- der. Max. Dose: single, 1 gramme (15 grs.); daily, 4 grammes (1 dr.)..... oz.	0.35
Naphthol, alpha -, White, Recryst.— $C_{10}H_8O$.—Colorless, Mono-clinic prisms of a disagreeable taste and melting at 94° C (201.2 F). SOL.: slightly in cold W., more in hot, readily in A., E. Powerful ANTISEPTIC, ANTI- FERMENTATIVE, etc., employed thus far mostly in the Arts..... oz.	0.45
beta -, Recryst.— $C_{10}H_8O$.—Colorless tabulæ, melting at 122° C (251.6 F). SOL.: 1000 cold W., 75 boiling; readily in A., E., C., B., Oils, Alkaline Liquids. ANTI- SEPTIC and PARASITICIDE, employed chiefly in Cutane- ous Affections (Psoriasis, Scabies, Eczema, etc.). APPLIC.: in 2-10% oint. or solut. Dose: 0.2-0.5 gramme (3- $7\frac{1}{2}$ grs.), in wafers. Max. Dose: single, 1 gramme (15 grs.); daily, 4 grammes (1 dr.).—N. B.—When "Naphthol" is prescribed, Beta-naphthol is always meant..... oz.	0.30
benzoate , (BENZO-NAPHTHOL). — $C_{10}H_7O.C_7H_5O$. — Whitish powder, melting at 110° C (230 F). SOL.: in 33 C., A.; almost insol. in W., E. Intestinal ANTISEP- TIC, like Betol. Dose: 0.25-0.5 gramme ($3\frac{3}{4}$ - $7\frac{1}{2}$ grs.) several times daily, in wafers or mixtures. oz.	1.00

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Potassium bi-sulphate.....lb. 0.80

carbonate (SALTS OF TARTAR).....lb. 0.30
C. P.....lb. 0.75

chlorate, Cryst.....lb. 0.40
Powd.....lb. 0.40

chloride, C. P.....lb. 0.60

cyanide (40%).....lb. 0.95

di-thio-carbonate.— K_2COS_2 .—Deliquescent, orange-red, crystalline powder. SOL.: very in W., slightly in A. DERMIC (Eczema, Psoriasis, Tinea tonsurans, etc.). APPLIC.: in 5-10% oint. (in Psoriasis, 20% oint.).

ferro-cyanide (YELLOW PRUSSIAN). C. P., U. S. P.
oz. 0.20

hydroxide, (CAUSTIC POTASSA), Pure (Purified by Alcohol).....lb. 1.25
Purif., Sticks.....lb. 0.65

hypo-phosphite, U. S. P.....oz. 0.25

nitrate, C. P., Cryst., U. S. P.....lb. 0.55

nitrite, C. P., in Sticks.....oz. 0.25

per-manganate, Pure, U. S. P....lb. 0.55

phosphate, Pure.....oz. 0.20

salicylate.....oz. 0.50

sulphate, Powd., C. P., U. S. P.....lb. 0.30

sulpho-carbolate.....oz. 0.20

sulpho-cyanate, Pure.— K_2CNS .—Dose: 0.05-0.2 gramme ($\frac{3}{4}$ -3 grs.), 3-5 times daily. Max. Dose: single, 0.3 gramme ($4\frac{1}{2}$ grs.); daily, 1.5 grammes (23 grs.).....oz. 0.25

sulphurated, (LIVER OF SULPHUR), Crude.
lb. 0.40

tellurate.— K_2TeO_4 .—White crystals. SOL: in W. ANTIHYDROTIC in Phthisis. Dose: 0.03-0.05 gramme ($\frac{1}{2}$ - $\frac{3}{4}$ gr.) at night, in pills, or alcoholic julep. See, also, SODIUM TELLURATE.....15 gr. 1.70

Potassium and Cobalt, nitrite.— $Co_2(NO_2)_{12}K_6 + 2H_2O$.—Yellow, micro-crystalline powder. SOL.: very slightly in W.; insol. in A., E. ANTISPASMODIC, ANTIDYSPEPTIC, etc., like the Nitrites generally. Dose: 0.03 gramme ($\frac{1}{2}$ gr.) every 2-4 hours....oz. 1.25

and mercury, iodide.....oz. 1.00

and sodium, boro-tartrate, (SOLUBLE CREAM OF TARTAR).....lb. 1.45

and sodium, tartrate, (ROCHELLE SALT), C. P., Cryst.....lb. 1.10

Propyl-amine. This name is often used erroneously to designate Tri-methyl-amine, which see.

Pyoktanin, Blue, Powder. SOL.: in 30 boiling, 50 hot, 75 cold W.; 12 of 90% A. (forming a solut. which may be diluted ad libitum with W. without causing precipitation), 50 Gl., C.; insol. in E., Collodion, Benzin. Non-poisonous, very diffusible in the animal fluids, practically odorless. External ANTISEPTIC, DISINFECTANT, ANALGESIC, etc., (for Surgery, Ophthalmia; in Diseases of the Nose and Throat, Malignant Neoplasms, etc.; also for Veterinary Practice). APPLIC.: pure, in pencil, or solut. (1-10:1000) etc. N. B.—PYOKTANIN STAINS are removed by lathering with common soap (rubbing in well) and then washing (or, if need be, brushing) off with Alcohol. PYOKTANIN PENCILS, when broken, are mended by wetting the surfaces with water, and pressing them together. PYOKTANIN SOLUTIONS should be kept in dark bottles, and should not be used when more than 3 days old.

oz. 2.00
Yellow.....oz. 2.00
Pencils, Blue.....ea. 1.00
Yellow.....ea. 1.00

Pyridine, C. P.— C_5H_5N .—Colorless, limpid, hygroscopic fluid, of empyreumatic odor and sharp taste; sp. gr. at 0° C (32 F) 0.9858; boil.-pt., bet. 116 and 118° C (240.8-244.4 F). Easily and clearly miscible with W., A., E., Benzin, Fatty Oils. RESPIRATORY SEDATIVE (Asthma, chiefly), ANTISEPTIC (Diphtheria, etc.) ANTIGONORRHOIC, etc. Dose (by Inhal.): 3-5 grammes (45-75 μ), allowed to evaporate spontaneously from a plate placed in the room. APPLIC.: as paint, in 10% solut.; as urethral Inj., $\frac{1}{8}$ % solut.....oz. 0.40

Quassin, Cryst., C. P.....15 gr. 1.00
Powder, C. P..... $\frac{1}{8}$ oz. 1.00

Quinidine sulphate, U. S. P.....oz. 0.70

Quinine alkaloid, U. S. P.....oz. 1.10

acetate.....oz. 1.10

arseniate.....oz. 1.15

borate.....oz. 1.15

citrate.....oz. 1.00

ferro-cyanide.....oz. 1.05

hydrobromate, U. S. P.....oz. 1.00

hydrochlorate ("MURIATE"), Cryst., U. S. P.
oz. 1.00

hypo-phosphite.....oz. 1.40

iodide.....oz. 1.30

lactate.....oz. 1.25

phosphate.....oz. 1.05

salicylate.....oz. 1.00

sulphate, Pure, Zimmer's.....oz. 0.45

tannate, Neutr., True.....oz. 0.55

valerianate, Cryst.....oz. 1.15

and urea, hydrochlorate.....oz. 1.15

Quinoline, base.....oz. 0.70

tartrate. Max. Dose: single, 2 grammes (30 grs.); daily, 6 grammes (90 grs.).....oz. 0.70

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Resin, jalap, Pure, Ph. G. III.....oz. 0.75

scammony, Ph. G. I.....oz. 1.00

Resorcin (RESORCINOL; META-DI-OXY-BENZENE), C. P., Cryst., Perf. White.— $C_6H_4(OH)_2$.—Whitish, odorless crystals. SOL.: in $1\frac{1}{4}$ W., E., A., 20 Fixed Oils; insol. in C. External and Internal ANTISEPTIC, ANTIPYRETIC, etc., like Carbolic Acid, but non-irritant, less toxic. APPLIC.: in Oint., or solut. Dose: Antis., 0.3-0.6 gramme (5-10 grs.) several times daily; Antipyr., 2-3 grammes (30-45 grs.). Max. Dose: single, 3 grammes (45 grs.); daily, 10 grammes ($2\frac{1}{2}$ drs.)...oz. 0.40

Resublimed, C. P., Perf. White. White, light, flocculent powder. SOL.: in $1\frac{1}{4}$ W., A., E., 20 Fixed Oils; insol. in C. ANTI-EMETIC, GASTRO-INTESTINAL ANTIZYMOTIC, etc. (Cholera Morbus, Cholera Nostras, Chronic Gastric Catarrh, Sea-sickness, etc.). Dose: 0.1-0.15 gramme ($1\frac{1}{2}$ - $2\frac{1}{4}$ grs.) every 1-2 hrs. in solut. or powder.....oz. 0.90

Retinol (ROSINOL; RESINOL). Distillation-product of Pine or Fir Resin. Viscid fluid; sp. gr. 0.900. External and Internal ANTISEPTIC (Venereal and Cutaneous Affections, etc.); also, SOLVENT of Phosphorus, Salol, etc. APPLIC.: pure, or in oint. or linim. Dose: 0.5 gramme (8 m) 4-6 times daily, in capsules.....oz. 0.90

Rubidium and Ammonium, bromide (DOUBLE SALT).—Rb Br. $3NH_4Br$.—White or yellowish powder. SOL.: in W. ANTI-EPILEPTIC, SEDATIVE, HYPNOTIC (Genuine Epilepsy and allied ailments). Dose: Anti-epil., 4-7 grammes (1- $1\frac{3}{4}$ drs.) daily, in solut.; Hypn., 4-5 grammes (60-75 grs.) singly. $\frac{1}{8}$ oz. 0.50

Saccharin (SULPHINIDE OF BENZOIC ACID). White, crystalline powder. SOL.: in 230 W. (solubility increased by Alkalis or Alkaline Carbonates), 100 A., E. Non-fermentable, non-toxic SUCCEDANEUM FOR CANE-SUGAR, 280 times as sweet as the latter; also ANTIFERMENTATIVE. Used both in Medicine (Diabetes, Obesity, Cystitis, Gastric and Intestinal Diseases, etc.) and in the practical Arts (Confectionery, Liquors, etc.). 1 SACCHARIN to 1000-2000 Glucose makes equivalent of Cane-sugar; 1 to 8000 liq. menstruum suffices for making sweet liquors.....oz. 1.70

Salicin, U. S. P. Max. Dose: single, 2 grammes (30 grs.); daily, 10 grammes (150 grs.).....oz. 0.35

Salol (PHENYLIC ETHER OF SALICYLIC ACID; PHENOL SALICYLATE).— $C_6H_4.OH.CO.O.C_6H_5$.—White, crystalline, nearly tasteless powder, of a faint aromatic odor. SOL.: in A., E., Benzene, Fatty Oils; alm. insol. in W. External and Internal ANTISEPTIC (Wounds, Cutaneous Affections, Gastro-intestinal Diseases, Cystitis, etc.), ANTIRHEUMATIC, ANTIPYRETIC; well-nigh a SPECIFIC AGAINST CHOLERA. Recently recommended for COATING PILLS not intended to act before reaching the intestines. APPLIC.: pure, or in solut. Dose: Antisept. and Antirheum., 0.5-1 gramme ($7\frac{1}{2}$ -15 grs.) several times daily; Antipyr., 2-3 grammes (30-45 grs.).....oz. 0.55

"Salophen."— $C_6H_4.OH.CO.O.C_6H_4.NH.CO.CH_3$.—Odorless, tasteless white leaflets, containing 51% of Salicylic Acid. SOL.: in E., A.; almost insol. in W. ANTIRHEUMATIC, ANTIPYRETIC, etc. (Articular Rheumatism, Phthisis, etc.) Dose: 4-6 grammes (1- $1\frac{1}{2}$ drs.) daily.....oz. 1.35

Sanguinarine, Pure.....15 gr. 1.35

nitrate.....15 gr. 1.35

sulphate.....15 gr. 1.35

Santonin, Cryst., U. S. P.....oz. 0.55

Santonin-oxim.— $C_{15}H_{18}O_2.NOH$.—Derivative of SANTONIN. Non-toxic Succedaneum for the latter. Dose: children, 0.05-0.15 gramme ($\frac{3}{4}$ - $2\frac{1}{4}$ grs.) in 2 fractional doses at interval of 1-2 hours, in W., or wafers, to be followed by purgative, and repeated for 2-3 consecutive days; adults, 0.3 gramme ($4\frac{1}{2}$ grs.).

$\frac{1}{8}$ oz. 0.50

Scillipicrin. From Scilla maritima. White, amorph., hygroscopic, bitter powder. DIURETIC. Dose: 4 grammes (1 dr.) daily.....15 gr. 0.50

Sodium acetate, Cryst.....lb. 0.40

arsenate, Pure.....oz. 0.20

arsenite, Pure.....oz. 0.20

benzoate, U. S. P.....oz. 0.20

bi-carbonate, Cryst., C. P.....lb. 0.45

Powd., C. P.....lb. 0.40

bi-chromate. ANTIDOTES: see Acid Chromic. lb. 0.45

bi-sulphate.....lb. 1.05

bi-sulphite, Pure, U. S. P.....lb. 0.65

carbolate (PHENATE), Dry.....oz. 0.35

carbonate, Cryst., C. P., U. S. P.....lb. 0.50

Dried, C. P., U. S. P.....lb. 0.65

chlorate, Cryst., U. S. P.....lb. 0.70

chloride, C. P.....lb. 0.60

choleate, Pure.....oz. 0.45

di-iodo-salicylate.— $HO.C_6H_4I_2.CO_2Na$.—White leaflets or needles. ANALGETIC, ANTITHERMIC, ANTISEPTIC (the latter in Parasitic Dermic Affections principally), etc. Dose: not yet determined; the Acid from which this Salt derives is given in $1\frac{1}{2}$ -4 grammes (23-60 grs.) daily.....oz. 1.70

di-thio-salicylate, II.— $S_2(C_6H_5.OH.COONa)_2$.—Grayish-white, hygroscopic powder. SOL.: readily and completely in W. Prompt, reliable, agreeable ANTIRHEUMATIC (Articular Rheumatism, Gonitis gonorrhoeica, etc.), ANTISEPTIC, etc. Dose: 0.2 gramme (3 grs.) 2-4 times daily. Also used in Veterinary Practice (Foot-and-mouth Disease), in 2.5-5% solut. oz. 1.70

ethylate, Dry.— $C_2H_5.NaO$.—White or brownish powder. SOL.: in A. ESCHAROTIC (Nævi, Warts, etc.), DEPILATORY. APPLIC.: in solut. (1:3 absol. A.), with glass rod. Chloroform arrests its action..oz. 1.35
Richardson's.....oz. 0.70
Liquid, Ph. Brit.....oz. 0.35

formate.— $NaCHO_2.H_2O$.—Small, white, deliquescent crystals. SOL.: in W., G. Recently lauded in SURGICAL TUBERCULOSIS. INJ. (parenchymatous): children, 0.025-0.075 gramme ($\frac{1}{2}$ - $1\frac{1}{2}$ grs.) every 8-10 days; adults, 0.2 gramme (3 grs.).....oz. 0.55

hydroxide, (CAUSTIC SODA), Pure. Purified by Alcohol.....lb. 1.25

hypo-phosphite.....lb. 1.90

hypo-sulphite, C. P., U. S. P.....lb. 0.40

lactate, Syrupy.....oz. 0.55

naphtholate (75%), (so-called "MICROCIDIN"). Whitish powder. SOL.: in 3 parts W. Surgical ANTISEPTIC. APPLIC.: in 3-5:1000 solut.....oz. 1.00

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Sodium nitrate , Cryst., Purif.....lb.	0.30
Cryst., C. P.....lb.	0.45
nitrite , C. P., Sticks.....oz.	0.25
para-cresotate .— $C_8H_7NaO_3$.—Bitter powder.	
SOL.: in 24 hot W. ANTIPYRETIC (Acute Rheumatism, Pneumonia, Typhoid, etc.), Infants' Intestinal ANTISEPTIC (Gastro-intestinal Catarrh, etc.). DOSE: 0.1-1.5 grammes ($1\frac{1}{2}$ -23 grs.), acc. to age, 3 times daily, in aqueous solut., with licorice extract....oz.	1.00
phosphate , C. P., Cryst.....lb.	0.35
Purif., Cryst.....lb.	0.30
pyro-phosphate.....oz.	0.15
salicylate , Pure, Powder.	
santoninate , U. S. P.....oz.	0.65
silico-fluoride .— Na_2SiF_6 .—White, inodorous, tasteless, crystalline powder. SOL.: in about 200 W. Non-toxic and non-irritant ANTISEPTIC, DEONORANT, STYPTIC, Etc., (Wounds, Carious Teeth, Cystitis, Gonorrhoea, etc.). APPLIC.: in 1:500 solut.	
	oz. 0.40
sulphate , Cryst., C. P.....lb.	0.45
Dry, C. P.....lb.	0.50
sulphide , Cryst.....lb.	1.10
sulphite , Cryst.....lb.	0.30
Cryst., Pure.....lb.	0.45
Dry, Pure.....lb.	0.50
sulpho-vinate , C. P.....oz.	0.20
tannate.....oz.	0.40
tartrate , Cryst.....lb.	0.85
tetra-borate , Neutral.—Colorless, hard, clustered, crystals. SOL.: in W.; at 15° C (59 F) to 16%, at 38° C (100.4 F) to 30%, at 100° C (212 F) to 70%. External ANTISEPTIC, etc., like Boric Acid.....oz.	0.75
tellurate .—ANTIHIDROTIC in Phthisis. DOSE: like POTASSIUM TELLURATE, which see....15 gr.	1.70
thiophene-sulphonate .— $C_4H_3S.NaSO_3$.—White, scaly powder, of a faint disagreeable odor containing 33% of sulphur. DERMIC (Prurigo, etc.). APPLIC.: in 5-10% oint.	
uranate.....oz.	1.00
valerianate.....oz.	1.10
wolframate (TUNGSTATE), Pure.....lb.	1.30
Sodium and Ammonium phosphate , (MICROCOSMIC SALT).....lb.	1.60
Solanine .—Basic Glucoside contained in widely different species of Solanum, but obtained chiefly from the sprouts of the Potato. (<i>Solanum tuberosum</i>). Colorless, lustrous, fine, bitter needles. SOL.: slightly in cold A., easily in hot; alm. insol. in W., E., Benzene. ANONYNE and NERVE-SENATIVE (Painful Gastric Affections, Neuralgias, Locomotor ataxia, Epileptoid Tremor, etc.). DOSE: 1-5 cgm. ($\frac{1}{8}$ - $\frac{3}{4}$ gr.) with meals, in pills or wafers, and followed by a draught of sweetened water.....15 gr.	2.25
Sparteine sulphate .—Salt of alkaloid from <i>Sarothamnus scoparius</i> (<i>Spartum scoparium</i> ; Broom).—($C_{15}H_{26}N_2$) $_2$.H $_2$ SO $_4$.—Colorless, neutral needles. SOL.: easily in W. HEART-TONIC, like Digitalin. DOSE: single, 0.05-0.02 gramme ($\frac{1}{8}$ - $\frac{1}{2}$ gr.), daily, 0.05-0.1 gramme ($\frac{3}{4}$ -1 $\frac{1}{2}$ grs.), in pills or powders. Max. DOSE: single, 0.03 gramme ($\frac{1}{2}$ gr.); daily, 0.1 gramme ($1\frac{1}{2}$ grs.).....15 gr.	0.30

Strontium bromide , Cryst.— $SrBr_2 \cdot 6H_2O$.—Long, colorless needles. SOL.: easily in W. GASTRIC TONIC (particularly in Hyperacidity), ANTINEPHRITIC, ANTI-EPILEPTIC, etc. DOSE: 2-4 grammes ($\frac{1}{2}$ -1 dr.) daily; in Epilepsy 10 grammes ($2\frac{1}{2}$ drs.) may be given daily.	
	oz. 0.55
Anhydrous.—White powder. SOL.: in W., only slightly in A. ACTION: like the crystallized. DOSE: 0.7 that of the crystallized.....oz.	0.70
lactate .— $Sr(C_3H_5O_3)_2 \cdot 3H_2O$.—White, granular powder. SOL.: in W. ANTINEPHRITIC, reducing the amount of Albumin in the urine without producing diuresis. DOSE: 2 grammes ($\frac{1}{2}$ dr.) daily. Max. DOSE: 10 grammes ($2\frac{1}{2}$ drs.) daily.....oz.	0.70
Strophanthin .— $C_{20}H_{34}O_{10}$ —Glucoside from <i>Strophanthus hispidus</i> . White, crystalline powder. SOL.: in W., A Well borne, non-cumulative HEART-TONIC. DOSE: 0.0002-0.0003-0.0005 (!) gramme ($\frac{3}{1000}$ - $\frac{2}{1000}$ - $\frac{1}{1000}$ (!) gr.). ANTIDOTES: Aconite, Veratrum viride.	
	5 gr. 2.75
Strychnine . ANTINOTES: Ur-ethane, Par-aldehyd, Chloral.	
acetate $\frac{1}{8}$ oz.	0.35
arsenate $\frac{1}{8}$ oz.	0.55
arsenite $\frac{1}{8}$ oz.	0.70
hydrochlorate $\frac{1}{8}$ oz.	0.35
hypo-phosphite $\frac{1}{8}$ oz.	0.45
nitrate $\frac{1}{8}$ oz.	0.35
phosphate $\frac{1}{8}$ oz.	0.40
Styrone , Liquid..... $\frac{1}{8}$ oz.	0.40
Sugar of Milk , Powder.....lb.	0.50
Sulphaminol (THIO-OXY-DI-PHENYL-AMINE).—Light-yellow powder. SOL.: in A.; insol. in W. External and Internal ANTISEPTIC. Non-poisonous Succedaneum for Iodoform (Laryngeal Phthisis, Purulent processes in the mouth, Wounds, Ulcers, Cystitis, etc.). APPLIC.: pure. DOSE: 0.25 gramme ($3\frac{3}{4}$ grs.) 4 times daily. (Also a reliable APIARIAN remedy in "Rottenbrood" of bees).....oz.	1.80
"Sulphonal" (DI-ETHYL-SULPHONE-METHYL-METHANE).— $(CH_3)_2C.(C_2H_5.SO_2)_2$.—Colorless, tasteless crystals. SOL.: in 500 W., 133 E., 65 abs. A., 110 50% A., 15 boiling W., 2 boiling A. HYPNOTIC. DOSE: 2 grammes (30 grs.) in powders.....oz.	2.70
Sulphur , Precipitated; (LAC. SULPHURIS), Pure.	
	lb. 0.35
chloride , Solution.....lb.	1.50
iodide , U. S. P.....oz.	0.60
Tannin , C. P., Clearly Sol., U. S. P.....oz.	0.30
Tartar Emetic . ANTINOTES: see Antimony.	
	lb. 0.75
Terebene , Optically Inactive.— $C_{10}H_{16}$.—Slightly yellowish fluid of a thyme-like odor; sp. gr. 0.860. SOL.: slightly in W., more freely in A., very in E.; boil.-pt. 156° C (312.8 F). ACTION: like Turpentine Oil; i.e., EXPECTORANT (Chronic Bronchitis, etc.), ANTIFERMENTATIVE (Flatulent Dyspepsia, Genito-urinary Diseases, etc.), External ANTISEPTIC and ASTRINGENT (Gangrenous Wounds, etc.). DOSE: 4-6 drops, gradually increased to 20 drops, 3 times daily, in emulsion or capsules. INHAL. (several times daily): 50 grammes ($1\frac{3}{4}$ fl. oz.) a week. APPLIC.: in solut. (1:20 W.).	
	lb. 1.20

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Terpin hydrate, Cryst.— $C_{10}H_{16}+3H_2O$.—Colorless, inodorous crystals. SOL.: in 22 hot, 200 cold W.; A., C., E. Succedaneum for Turpentine Oil, thus being EXPECTORANT, DIURETIC, ANTIZYMOTIC, etc. DOSE: Expect., 0.2-0.4 gramme (3-6 grs.); Diur., 0.6-1 gramme (10-15 grs.). Max. Dose: single, 1 gramme (15 grs.); daily, 3 grammes (45 grs.).....oz. 0.40

Terpinol, Liquid. Max. Dose: same as Terpin hydrate.
oz. 0.60

Tetronal (DI-ETHYL-SULPHONE-DI-ETHYL-METHANE).— $(C_2H_5)_2>C<(SO_2.C_2H_5)_2$.—Lustrous leaflets. SOL.: in A., E.; poorly in W. HYPNOTIC, SEDATIVE, etc. Dose: 1-2 grammes (15-30 grs.)..... $\frac{1}{2}$ oz. 1.85

Thaline sulphate.— $(C_{10}H_{13}NO)_2.H_2SO_4$.—Yellowish-white crystalline powder, of a cumarin-like odor and an acid-saline and bitterish-aromatic taste, and melting above $100^\circ C$ ($212^\circ F$). SOL.: in 7 cold, $\frac{1}{2}$ boiling W., 100 A.; poorly in C., E. ANTIPYRETIC (in the most various Febrile Affections), External and Internal ANTISEPTIC (Gonorrhoea, Typhoid Fever, etc.), etc. Dose: 0.2-0.5 gramme ($3\text{--}7\frac{1}{2}$ grs.) in water or wine, flavored with Orange-peel Syrup. APPLIC.: in 1-2% solut., for urethral inj.....oz. 4.05

tartrate.— $C_{10}H_{13}NO.C_4H_6O_6$.—Powder, similar to the Sulphate. SOL.: in 10 cold W., 300 A.; nearly insol. in C., E. ACTION, DOSE and USES, same as those of the Sulphate.....oz. 3.75

Theine.....oz. 0.80

Theobromine-lithium and Lithium salicylate. White powder. SOL.: in 5 W. DIURETIC (Cardiac Dropsies). Dose: 1 gramme (15 grs.) 4 times daily.....oz. 2.50

-sodium and sodium salicylate, (so-called "DIURETIN").— $C_7H_7N_4O_2Na.C_6H_4OHCOONa$.—White powder. SOL.: in hot W., warm diluted A.; insol. in E., C. DIURETIC (Cardiac Affections with dropsical effusions, etc.). Dose: 1 gramme (15 grs.) 6 times daily, in 5% solut.....oz. 2.35

Thiophene di-iodide.— $C_4H_2SI_2$.—Powder containing 75.5% of Iodine and 9.5% of Sulphur, melting at $40.5^\circ C$ ($104.9^\circ F$). SOL.: easily in E., C., hot A.; insol. in W. TRAUMATIC GRANULATOR, etc., like Iodoform. APPLIC.: pure, or in 10% gauze.

Thym-acetin. Derivative of Thymol.— $C_6H_2.CH_3.C_3H_7.OC_2H_5.NH(C_2H_5O)$. White, crystalline powder. SOL.: slightly in W. ANALGETIC, HYPNOTIC, etc., (Nervous Headaches, Paralysis, Delirium, etc.). Dose: 0.25-1 gramme ($3\frac{3}{4}$ -15 grs.).

Thymol, Cryst., U. S. P.....oz. 0.55

Tincture simulo. From the seeds of Capparis coriacea. NERVINE (Hysteria, Nervousness, Epilepsy, etc.). Dose: 2-4 grammes ($\frac{1}{2}$ -1 fl. dr.) twice daily, in sweet wine.....oz. 0.70

strophanthus, 1:20. Pale-yellow fluid, of a peculiar, penetrating odor and a persistent, bitter taste. Non-cumulative HEART-TONIC. Dose: 0.3-1 gramme (5-16 μ) twice daily, in Cherry-laurel Water. Max. Dose: single, 1.5 grammes (24 μ); daily, 5 grammes (80 μ). ANTIDOTES: see Strophanthin ..oz. 0.20

Tri-brom-phenol. Soft, white crystals, of m. p. $95^\circ C$ ($203^\circ F$). SOL.: readily in A., E., C.; less in Gl., Phenol, W., or dil. A. Energetic Surgical DISINFECTANT (Purulent and Gangrenous Processes). APPLIC.: in 3% oint., or 2% solut.....oz. 1.50

Tri-methyl-amine (often erroneously prescribed or ordered by the name of "PROPYL-AMINE"), 10% Solution. Max. Dose: single, 3 grammes (45 μ); daily, 10 grammes ($2\frac{1}{2}$ drs.).....oz. 0.45

hydrochlorate..... $\frac{1}{8}$ oz. 0.70

Trional (DI-ETHYL-SULPHONE-METHYL-ETHYL-METHANE).— $CH_3.C_2H_5>C<(SO_2.C_2H_5)_2$.—Lustrous tabulæ. SOL.: in A., E.; scarcely in W. ACTION and DOSE, like Tetronal.....oz. 2.40

Ulexine. Alkaloid from Ulex Europæus.— $C_{11}H_{14}N_2O$.—Yellowish-white, very hygroscopic crystals. SOL.: difficultly in W., easily in C. DIURETIC; ANTIDOTE to Strychnine. Dose: 0.0025-0.01 ($\frac{1}{25}$ - $\frac{1}{5}$ gr.).

Uranium acetate.....oz. 0.90

nitrate, C. P., for Analysis. SOL.: in W., A., E. ANTIDIEBETIC. Dose: 0.01-0.02 gramme ($\frac{1}{5}$ - $\frac{1}{3}$ gr.) 3 times daily. Max. Dose: 0.1 gramme ($1\frac{1}{2}$ grs.).
oz. 0.90

Urea, Pure, Cryst.....oz. 0.85

Urethane, Ethylic, (ETHYL CARB-AMATE), C. P.— $CO(NH_2)OC_2H_5$.—Colorless crystals, melting bet. $47\text{--}50^\circ C$ ($116.6\text{--}122^\circ F$), boiling without decomposition at $180^\circ C$ ($356^\circ F$). SOL.: in W., A., E. HYPNOTIC, ANTISPASMODIC (Strychnine-poisoning, Tetanus, etc.), SEDATIVE (Chorea, etc.). Dose: Hypnot., 2-3 grammes (30-45 grs.). Max. Dose: 5 grammes (75 grs.).....oz. 0.75

Veratrine, C. P., U. S. P. ANTIDOTES: Caffeine; diffusible stimulants..... $\frac{1}{8}$ oz. 0.35

Water, bitter-almond.....lb. 0.50
cherry-laurel.....lb. 0.45

Zinc, acetate, Pure, U. S. P.....lb. 0.70

benzoate.....oz. 0.65

bromide, U. S. P.....oz. 0.30

carbolate.....oz. 0.35

chloride.....oz. 0.15

cyanide.....oz. 0.35

hypo-phosphite.— $ZnP_2H_4O_4+H_2O$.—SOL.: easily in W. Recommended as substitute for Zinc Oxide. Dose: 0.03-0.1 gramme ($\frac{1}{2}$ - $1\frac{1}{2}$ grs.), in syrup.
oz. 0.85

iodide, U. S. P.....oz. 0.65

lactate.....oz. 0.45

oxide, C. P., U. S. P.....lb. 0.65

per-manganate, C. P., Cryst.—Violet-brown, crystalline granules. SOL.: readily in W. Non-irritating ANTIGONORRHOEIC. APPLIC.: in 1:4000 solut. N. B. —Explodes when compounded directly with A., Gl., Sugar, Dry or Fluid Vegetable Extracts, or other easily oxidizable or combustible substances!
oz. 1.30

phosphide, U. S. P.....oz. 0.75

salicylate, White.....oz. 0.55

sulphate, C. P., Cryst.....lb. 0.35

sulpho-carbolate (SULPHO-PHENATE; PHENOL-SULFONATE). Dose: 0.12-0.2 gramme (2-3 grs.).
oz. 0.20

sulphydrate.— $Zn(SH)_2$.—White, solid, prone to decompose in the dry state (must be kept under water). Internal and External DERMIC (Vegeto-parasitic Affections). APPLIC.: in 10% oint. Dose: 0.03-0.12 gramme ($\frac{3}{4}$ -2 grs.) daily, in pills.
oz. 0.90

valerianate, Cryst., U. S. P.....oz. 0.40
Powd.....oz. 0.40

EDITOR'S NOTES.

OUR INSTITUTIONS.

AMERICAN GYNÆCOLOGICAL SOCIETY.

At the Convention of the AMERICAN GYNÆCOLOGICAL SOCIETY in Brooklyn, the following officers were elected:—Dr. THEOPHILUS PARVIN of Philadelphia, President; Drs. W. H. PARISH of Philadelphia and W. H. BALSER of Boston, Vice-Presidents; Dr. HARRY C. COE of New York, Secretary; Dr. MATTHEW T. MANN of Buffalo, Treasurer. It was arranged that the next annual meeting would be held in Philadelphia.

NEW YORK POLYCLINIC.

It is announced that Prof. ARPAD G. GERSTER has resigned his Professorship of Surgery in the New York Polyclinic. This will be a loss not only to the school but to the profession at large, which has profited much by his valuable teaching.

NEW-YORK POST-GRADUATE MEDICAL SCHOOL.

Prof. JOHN HOWARD RIPLEY, it is announced, has resigned his Professorship of Diseases of Children in the New-York Post-Graduate Medical School and Hospital. The school and the profession have cause for regret in this. Dr. RIPLEY is a thorough and practical teacher in this branch of medical science.

It is also stated that Dr. JOHN DORNING, Instructor in Diseases of Children, has resigned his position in this Department of the Post-Graduate School.

MEDICAL REQUIREMENTS.

Throughout England and the British colonies, excepting British Columbia and Ontario, the only requirement needed to secure the right to practice medicine, is the possession of a *bona fide* diploma.

In this country, the state laws which the physician encounters differ greatly in regard to the regulation of admission to practice. An honestly earned diploma has in many states only the force of a simple certificate or permit which enables the holder to present himself as a candidate before the variously constituted state boards. From these state boards the applicant, if successful in his examination, finally gains the privilege to practice medicine and surgery among his fellow-citizens.

The following list shows the requirements in each state, and it illustrates that about as much variety

in attainment is called-for as was previously demanded in the various medical schools throughout the country.

NEW ENGLAND STATES.

MAINE: Practically no requirements.

NEW HAMPSHIRE: The applicant must furnish evidence of the possession of a *bona fide* diploma, and secure a license from some of the medical societies authorized to exist by the state laws.

VERMONT: A diploma endorsed by the Board of Censors, or a certificate from the same board certifying to qualifications.

MASSACHUSETTS: No law regulating the practice of medicine.

RHODE ISLAND: No law regulating the right to practice medicine.

CONNECTICUT: No law regulating the requirements.

MIDDLE ATLANTIC STATES.

NEW YORK: The only body entitled to license practitioners is the University of the State of New York, Albany. An examination lasting four days is required. This embraces the following subjects: Anatomy, Physiology, Hygiene, Chemistry, Surgery, Obstetrics, Pathology, Diagnosis, Therapeutics (including Practice), and Materia Medica. Examinations are held, five times in each year, in New York City (410 East Twenty-sixth street), Albany (High School Building), Syracuse (High School), and Buffalo (High School). Seventy-five per cent of correct answers is required on the whole examination, and all subjects must be passed at the same term. The fee, which must be paid in advance, is \$25.

NEW JERSEY: Examinations are held before the State Board of Medical Examiners, in Jersey City. The examination is in writing, and occupies two days. Thirty-three and one-third per cent of correct answers is required in every subject, and a general average of seventy-five per cent is necessary for passing. The fee is \$15.

PENNSYLVANIA: The candidate's diploma must be indorsed by some medical college in the state, and then the applicant must be registered by the county proto-notary. The fee is \$1.

DELAWARE: Registration of a *bona fide* diploma with the Board of Medical Examiners is demanded. These examiners thereupon grant a license. Or, upon examination by said board, a license may be granted to practice medicine.

MARYLAND: A *bona fide* diploma certified by the State Board of Health, admits to practice. The fee is \$10.

[TO BE CONTINUED.]

NEW BOOKS.

TEMPERAMENT, DISEASE, AND HEALTH. By FRENCH ENSOR CHADWICK, Commander U. S. N.—N Y. and Lond.: G. P. Putnam's Sons. 8vo.; 85 pp.

The introduction starts off by telling the reader that "This little book is written primarily to put forward two ideas: First, that there is associated with temperament a specific rate of change; second, that the failure to keep up that rate, or, in other words, a failure to have elimination keep pace with accession of material, is the principal cause of organic disease."

In the first and second chapters of this little work, the author discusses the influence of temperament upon health and disease, and gives quite a clear resumé of the present state of our bacteriological knowledge in its relation to health and disease, and especially in its relation to chronic maladies.

The author has introduced a somewhat novel method of reading the temperament by the color of the eyes, and says: "I have nowhere found the color of the eye mentioned as an indicator of temperament, but I am convinced that it is by far the most important and suggestive."

In a similar manner, Dr. JONATHAN HUTCHINSON considers the complexion more or less of an indicator. That the study of the whole facial expression and all that it reveals can be utilized as a good index to the whole chemico-physiological mechanism and mental and physical phenomena of human life, no one can deny. But every point must be carefully weighed, and not one alone taken as the sole standard.

The third chapter enforces and completes the theory of temperament, assimilation, and interchange in the preservation of healthy phenomena and in the production of disease.

The subject is interestingly treated from beginning to end and is well worth a careful reading by every medical man. The whole subject is treated in a novel fashion.

ESSENTIALS OF DIAGNOSIS arranged in the form of Questions and Answers,—prepared especially for students of medicine. By SOLOMON SOLIS-COHEN, M.D., and AUGUSTUS A. ESHNER, M.D.—Philadelphia: W. B. Saunders; 1892. 8vo; 382 pp.; illustrated. Price, \$1.50 net.

This volume is the 17th in number among the

series of "Saunders's Question Compends." Like the others of the series, it is composed of a series of questions with condensed answers. In its general order of arrangement it deals with the pathological anatomy, the subjective and objective signs of disease, and differential diagnosis. *Ætiology* is given only a passing notice, and the treatment of the diseases is left entirely to the major works on practice.

The work is evidently only intended as a ready method of obtaining some of the leading points in the absence of the standard text-books.

It undeniably will serve the popular demand of the student and in that way be of value, because it furnishes the main facts in condensed form, thus aiding him to obtain rapidly a somewhat superficial knowledge of the subject.

A BOOK ON THE PHYSICIAN HIMSELF, and things that concern his reputation and success. By D. W. CATHELL, M.D. 10th Edition (Author's Last Revision). Thoroughly revised and rewritten. Philadelphia: The F. A. Davis Co.; 1892. One Royal Octavo Volume; 348 pp. Extra cloth. Price, post-paid, \$2.00 net.

The appearance of ten editions of this work in so short a time, might in itself be taken as a guarantee of the value of the book. A perusal of its chapters shows at once the worth of the publication.

From beginning to end it is full of practical, sound advice. Facts which every physician should not only heed, but assiduously cultivate.

The author says among the thousand other hints: "Never allow yourself to be biased too quickly or strongly in favor of new and unsettled theories, based on physiological, microscopical, chemical, or other experiments, especially when offered by the over-zealous to establish their own conclusions or preconceived ideas, or by those who have identified themselves with the latest medical novelty, etc."

This certainly is good advice, when the profession is being deluged with new and half-tried remedies.

Every practitioner should carefully read this book, for by so doing he will be greatly aided in the ease with which he can practice medicine.

A PRACTICAL MANUAL OF DISEASES OF THE SKIN. By GEORGE H. ROHÉ, M.D., assisted by J. WILLIAM LORD, A. B., M. D. No. 13 in the Physicians' and Students' Ready Reference Series. Philadelphia: The F. A. Davis Co. In one neat 12mo volume, 303 pp. Extra cloth. Price, \$1.25 net.

In this little volume no attempt has been made to add another text-book to the already large list of Dermatological works. The aim of the authors has been to condense and systematize the facts relative

to the pathology, symptoms, and treatment of skin affections.

In this they have succeeded quite well, and the student will undoubtedly find it a valuable aid in the study of skin diseases.

Considerable attention is devoted to syphilitic lesions of the integument. There is also a large list of formulas given for use in the various skin lesions.

BOOKS RECEIVED.

A MANUAL OF MATERIA MEDICA; Being a Guide to Materia Medica of the Vegetable and Animal Kingdoms. For the use of Students, Druggists, Pharmacists, and Physicians.—By JOHN M. MAISCH, Phar. D., Prof. of Materia Medica and Botany in the Phila. College of Pharmacy. New (fifth) Edition, revised.—Phila.: Lea Brothers & Co., 1892. In one 12mo volume of 544 pp., with 270 engravings. Cloth, \$3.

MATERIA MEDICA AND THERAPEUTICS.—By L. F. WARNER, M.D., Attending Physician, St. Bartholomew's Dispensary, New York. Being volume 5 of the Student's Quiz Series. Phila.: Lea Brothers & Co., 1892. Pocket size, 224 pp., \$1.00.

THE PRINCIPLES OF THEORETICAL CHEMISTRY, with special reference to the Constitution of Chemical Compounds.—By IRA REMSEN, Professor of Chemistry in the Johns Hopkins University. Fourth Edition. Revised. Phila.: Lea Brothers & Co., 1892. 12mo; 322 pp. Price, \$2.00.

A MANUAL OF CHEMISTRY, INORGANIC AND ORGANIC.—By ARTHUR P. LUFF, M.D., B. S. Lond., M. R. C. P. Phila.: Lea Brothers & Co., 1892. In one 12mo volume; 522 pp. Price, \$2.00.

A TEXT-BOOK OF THE PRINCIPLES AND PRACTICE OF MEDICINE for the use of Medical Students and Practitioners.—By HENRY M. LYMAN, A.M., M.D., Professor of the Principles and Practice of Medicine in the Rush Medical College, Chicago.—Phila.: Lea Brothers & Co., 1892. 170 Illustrations; 923 pp. Price, \$4.75.

RECENT PAPERS.

CONCERNING THE EMPLOYMENT OF LIGHT in the Treatment of Disease. By Will F. Arnold, M.D.—Reprint from *Southern Practitioner*.

DIABETE SALIVARE. By Dr. Toralbo Luigi, of Naples.—Reprint from *Raccoglitore Medico*.

WHEN SHALL WE TREPHINE IN FRACTURES OF THE SKULL? By Emory Lamphear, M.D.—Reprint from *Kansas City Medical Index*.

HERNIA IN INFANCY and its Correct Treatment.

By Alexander Dallas, M.D.—Reprinted from *International Journal of Surgery*.

PRACTICAL CEREBRAL LOCALIZATION. By Frank Parsons Norbury, M.D.—Reprint from *Medical Fortnightly*.

EPILEPSY. By Frank Parsons Norbury, M.D.—Reprint from *Transactions of Illinois State Medical Society*.

A CASE OF ABSCESS OF THE TEMPERO-SPHENOIDAL LOBE, and of the middle lobe of the cerebellum. By Frank P. Norbury, M.D.—Reprint from *Medical News*.

SULPHIDE OF CALCIUM, or calx sulphurata, in Tonsillitis. By Frank P. Norbury, M.D.—Reprint from *Therapeutic Gazette*.

ATHETOSIS BILATERALIS. By Frank P. Norbury, M.D.—Reprint from *Medical Fortnightly*.

THE INFLUENCE OF PARTURIENT LESIONS OF THE UTERUS AND VAGINA, in the causation of Puerperal Insanity. By George H. Rohé, M.D.—Reprint from *Journal of the American Medical Association*.

A CONTRIBUTION to the Ætiology and Treatment of Spasmodic Torticollis. By Henry L. Shirvely, M. D.—Reprint from *International Journal of Surgery*.

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THE USE OF FEVER-HEAT: The dangers of Antipyretics in typhoid Fever. By J. H. Musser, M.D.—Reprint from *Medical News*.

WHOOPIING-COUGH: Its Management: Its Climatic Treatment. By J. H. Musser, M.D.—Reprint from *Climatologist*.

GRAVE FORMS of Purpura Hæmorrhagica. By J. H. Musser, M.D.—Reprint from *Transactions of the Association of American Physicians*.

ABORTION. By E. S. McKee, M.D.—Reprint from *American Journal of Obstetrics and Diseases of Women and Children*.

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COD-LIVER-OIL THERAPY.

The daily and almost universal use of the Oleum Morrhuæ would appear to relieve this substance from the necessity of any further discussion.

Yet the advances recently made in our knowledge of the chemico-physiological laws governing the animal economy, have placed at our command a more exact description of Cod-liver Oil and its physiological actions; and through this a more scientific explanation for its therapeutic utility can be established.

We are thus enabled to say exactly how this oil enters the system; at what point in the animal organism it is first oxidized; what it yields to the animal economy; and how and in what form it is eliminated from the body.

In works devoted to materia medica and therapeutics, Oleum Morrhuæ is classed as an alterative; but in what manner this oil produces marked changes in the system, has never been satisfactorily elucidated.

In composition Oleum Morrhuæ is a somewhat complex substance, as would naturally be supposed; being made, as it is, from the hepatic gland of the Gadus

morrhuæ by a process of heating or superheating.

Abstracted, as this oil is, from the protoplasmic tissue of the hepatic cells,—which are known to be the great chemico-physiological transmuters of the proteid molecule, both on its way to form the fundamental structures of the body, and also on its way back to yield the final excrementitious substances both of the bile and urine,—it is but natural that Cod-liver Oil should contain traces of many by-products which have come from the imperfect or incomplete chemical mutations of nitrogenous molecules. In fact it is quite probable that the oil contained in the protoplasmic substance of those hepatic cells, and which finally becomes the Oleum Morrhuæ, is in itself a by-product of proteid oxidation, either complete or incomplete—more probably the latter.

At the time the oil is abstracted by the heat, the tissues of the livers and the blood contained therein all contain some saline elements. These salts are apt to become associated with or dissolved in the fat as it separates from the denser structures of the liver.

Consequently, unless the oil is afterwards *very highly* purified, it is likely to contain traces of all the inorganic compounds that may have been taken-in as food and perchance are passing through the liver at the time the animal dies. As the sea-food upon which the fish subsists, contains more chlorine, iodine, and bromine compounds than that of land animals, it is to be expected that these substances will become mingled with the fat, and can then be detected in carefully made analyses of this oil. In this manner all the inorganic compounds, found in Cod-liver Oil from time to time, can be traced to their origin in the food-stuffs ingested.

As the process of manufacture of the oil deals with the hepatic cells, the intermediate biliary capillaries, and in fact the whole organ, it is *not only* possible but highly probable that Cod-liver Oil should contain traces of bile salts and bile pigments.

Beyond this, it can contain an indefinite number of by-products or leucomainic principles, resulting from the proteid metabolism which may have been imperfectly effected in the hepatic cells. These substances will vary with the condition of the cod's liver at the time of death—whether healthy or diseased; and to them may also be added some products of putrefaction after death. Such substances of organic composition will also be modified, produced, or destroyed in the process of abstracting the oil, which like all oils has a powerful affinity particularly for substances of organic or volatile nature. Consequently, an almost endless variety of nitrogenous by-products may be found in oils of varying purity.

It is highly probable that, in many instances, the peculiar and decided effects

which seem to originate from the ingestion of the oil—over and above those which are produced by the oxidation of the fat molecule—are caused by these ptomaines, etc., which have become incorporated in, and are ingested with, the oil.

Depending upon their quantity and character, and the state of the system when introduced, these organic nitrogenous compounds are capable of producing an almost endless variety of symptoms and actions, some of which may result in good to the system; but, in general, they are more likely to be detrimental and to delay recovery. Of these nitrogenous and other organic constituents, very small quantities may—directly by their action upon nerve-centres, or by a secondary disturbance in the oxidation processes—in some rare instance produce some profound and peculiar result which often is not again obtainable from the use of a second bottle.

Thus, all the results developed through the presence of these bodies are *exceptional in character, and not uniform and common to the Oleum Morrhue*; and, generally, the percentage of any of these ingredients, present in each dose taken, is so infinitesimally small that none of them are worthy of consideration either from physiological or therapeutic standpoints.

It could be argued that if the oil was imperfectly purified, it might contain a considerable quantity of the halogen elements, and that if this were so, a certain amount of therapeutic action might be ascribed to the presence of inorganic compounds.

At best, however, only a trace is found of any of the inorganic series; while the well established fact remains, that the iodides, chlorides, and bromides,

have to be administered in considerable quantities,—that is, several grains,—before any appreciable effect can be wrought upon the system by their presence.

These two facts remaining,—it is not possible to produce any certain effect upon the system by the halogen group or other inorganic substances as ordinarily contained in the *Oleum Morrhuæ*, either pure or impure.

All this limits the discussion of *Oleum Morrhuæ* as a therapeutic agent to the possible utility of a simple carbohydrate or animal fat.

Its alterative action, if it has any, must be explained by the chemical laws which govern the movements of the fat in its transit through the animal organism.

Chemical physiology has demonstrated that animal fats are easily emulsified and absorbed; while vegetable fats are not, as a rule, emulsified and taken-up by the lymphatic system, but are converted into soap and glycerin in the intestinal canal, and thereby rapidly cause catharsis.

Therefore, it is easy to understand why empirical observation has demonstrated that the vegetable class of fats could be used to advantage as cathartic agents; while Cod-liver Oil, like all fats of animal origin, was absorbed and utilized by the animal economy, instead of producing primary catharsis.

Cod-liver Oil, like all animal fats, if taken in inordinately large quantities, will exceed the emulsifying power of the digestive tract. All that cannot be emulsified must remain unabsorbed; and then, like all fatty substances unused in the alimentary tract, the Cod-liver Oil becomes a foreign body and tends to slip downward and out of the anal orifice as the result of the constantly descending peristalsis of the intestinal canal,—acting,

according to the quantity unabsorbed, either as a laxative or as a cathartic.

Once absorbed into the lymphatic system, the Cod-liver Oil in its emulsified state passes by the lacteal channels to the receptaculum chyli, and from there by the way of the thoracic duct to the venous system. This fat-emulsion reaches the blood-current at the origin of the left brachio-cephalic vein, and from this point passes rapidly to and through the right heart, to reach the pulmonary capillary circulation.

So far, the fat can be easily traced in the blood,—from its entrance by the intestine, on, up to the lungs. When the fat reaches the pulmonary capillaries, it has arrived at the point in the body at which oxygen is first introduced to it. As the oxygen is loosely combined with the hæmoglobin, and as the fat is highly oxidizable, the oil is rapidly attacked, while passing through the lungs, by the oxygen, and converted into carbon dioxide and water,—yielding a large amount of heat, and through it energy, to the system. This transmutation of the oil is so rapid that no evidence of fat can be found in the pulmonary veins nor in any part of the circulation except that portion of the truly venous system already mentioned: between the origin of the left brachio-cephalic vein and the heart and lungs.

Instances are, however, recorded in which the system has the power to absorb proportionally more fat than there is oxygen absorbable, with which to oxidize the oil; and then it occurs that fat, for a brief term, may be found throughout the circulating blood. Under normal circumstances, however, this only lasts for a short time;—the fat rapidly coming round and round again to the lungs, where it repeatedly meets the ever-re-

newed influx of oxygen, until finally all the oil is dispersed from the blood by oxidation in the lungs.

If the ingestion and absorption of Cod-liver Oil be always kept widely within the oxygenating capacity of the system,—so that a sufficient surplus of oxygen is still left, with which to completely oxidize the proteids and glucose in the liver,—no harm can come to the animal economy from the ingestion of the oil.

In fact, in those instances in which the patient avoids fats in his ordinary diet, and does not take a sufficient quantity of them into the system to produce the requisite quantity of bodily heat, the addition to that deficiency by giving *Oleum Morrhuæ* as a medicinal agent will bring the physiological processes of the body up to a normal standard; and the improvement will be marked and readily apparent.

Indisputable clinical cases of this nature have led to the empirical assumption that *Oleum Morrhuæ* is good for almost any wasting disease. *This, however, is not true*; and many deaths could unquestionably be traced to the erroneous use of this oil, if we only had the power to read the true record of all cases.

When, however, satisfactory improvement is obtained, an alterative effect has been developed—not in a mysterious or unexplainable manner, but simply by supplying to the system the lacking fat which had previously been omitted in the percentage composition of the food-stuffs ingested.

On the other hand, if the food-stuffs contain fully as much fat as the oxygenating capacity of the system can oxidize, the super-added Cod-liver Oil may be absorbed at the expense of some of the natural food elements. If it be already emulsionized, it does not even tax the

digestive powers to prepare it for absorption, but slips directly into the lymphatic system and passes continually in excessive amounts to the lungs. In either case, this constant inpouring of an abnormally large amount of fat into the pulmonary circulation rapidly exhausts the intake of oxygen, and continually results in a shortage of oxygen for general distribution to the body for transmuting the proteid molecule.

As the metabolism of the nitrogenous substances is a difficult task, somewhat slowly effected and requiring a liberal allowance of oxygen with which to accomplish their complete oxidation, the chemical mutation of the proteid molecule will now become imperfectly effected.

A condition of sub-oxidation is developed; and, instead of the full quatum of urea and the relative proportion of uric acid and creatinine appearing in the urine as the indisputable evidence of a normal state of the system, the percentage of urea falls and that of uric acid rises. As the sub-oxidation increases, still lower products of proteid oxidation appear in the urine; such as oxalic acid, represented by crystals of the oxalate of lime; lactic acids, represented by various lactates; glucose; hippuric acid; and, finally, albumin.

In many instances, the rapid consumption of oxygen by this excessive ingestion and absorption of fat causes a form of incomplete oxidation of the food-stuffs by which an excess of fat comes to be one of the by-products; and the fat so formed is stored up within the system. When this occurs, the individual grows corpulent, but is soft and flabby, and in a state of disease.

Owing to the fact that fat is rapidly oxidized in the lung,—thus yielding quickly a large amount of heat and en-

ergy, which often exhilarates falsely,—both the individual and the physician in attendance are deluded with the notion that the patient is rapidly gaining. Yet, in the eyes of a close observer it must become apparent that the increase in bulk is soft and spongy, and that the patient is actually growing weaker and weaker. These cases often end in somewhat sudden death, as a result of the internal starvation and the insidious retrograde changes going-on within the system but masked by a beautiful rotundity of external form.

Here, as in the instance previously cited, an alterative action has been produced by the development of incomplete oxidation of the food-stuffs; but it is, generally speaking, an unfavorable change—one from bad to worse.

There are times, however, when the oxidation processes of the system have become so sluggish, that the ordinary food-stuffs and therapeutic agents will not break up this morbid train of actions. In these instances, the introduction of considerable quantities of the Oleum Morrhuæ temporarily crowds the physiological economy yet a little lower down in the scale of oxidation of the proteid bodies; whereupon the physiological activity of the nervous system is suddenly shocked by the reflex irritation from the large production of heat, and also by the presence of the imperfect products of the proteid metabolism. This combined action of the heat and by-products of the proteid oxidation *at first*, like many drugs, *depresses* the nervous system, *and then stimulates* it to a renewed and more perfect activity.

If to this there is added a properly adjusted diet, and some other suitable remedies,—as is often the case when Oleum Morrhuæ is administered,—

rapid and permanent recoveries may result,—and these are very often erroneously credited to the *sole* action of the oil.

In this complex manner, good results are obtained; which, added to those before noted, still further strengthen the empirical faith in Oleum Morrhuæ. But the large numbers that have failed to be benefited, or that have died under the influence of the oil, are never found worthy of record.

In all cases of *pulmonary lesions*, tubercular or otherwise, in which the intaking capacity of the respiratory organs is defective, the ingestion of an unduly large quantity of Oleum Morrhuæ exhausts the oxygen supply, *even at its point of entrance* to the circulation, and likewise generates an excessive amount of heat at a point in the system where it cannot be generally useful. This robs the other parts of the body of the oxygen so necessary to transmute the proteid molecule, out of which constructive and reparative material can alone be developed and with which nature is furnished the means of eradicating the diseased process;—thus depriving the system of the power of repair which might be developed under more favorable circumstances.

In these instances, the heat generated so rapidly in the lungs—in order to reach the other parts of the body and aid in the metabolism of the proteid molecule—must be carried to the remoter parts by the circulating blood. In health, where the storage power for heat is at its normal height, this can be accomplished. But, in the tubercular and other diseased processes, the storage power for heat is decreased and the heat-excreting function of the body is greatly augmented; so that in these diseases much of the heat is dissipated before it can be made avail-

able. This also aids the retrograde process,—as did the unduly rapid expenditure of oxygen.

In all forms of anæmia, where the red corpuscular elements of the blood are decreased in number, and the oxygenating capacity of the system is thereby reduced below par, the excessive ingestion of the oil must likewise create mischief. The rapid inpouring of fat into the pulmonary circuit, here again, exhausts the oxygen rapidly at that point and thereby intensifies the incompleteness and imperfectness of proteid oxidation through the body.

While the fat may thus stimulate, exhilarate, and falsely buoy-up the flagging system, it constantly decreases the chances for recovery.

Reviewing the foregoing, we find that Oleum Morrhuæ or any animal fat passes rapidly to the lungs,—there to be quickly and completely oxidized into carbon dioxide and water. And—as biological chemistry has proven beyond a question—the animal economy cannot take a substance composed of carbon, hydrogen, and oxygen, and join to it free nitrogen and sulphur or the nitrates and sulphates, to form a proteid molecule. All that can be derived from the rapid oxidation of the fat is heat, and, through it, energy. No constructive or reparative material can be obtained by the ingestion and oxidation of Oleum Morrhuæ or any fat.

In those cases in which there is avoidance of fats of all kinds, and in those others in which further sub-oxidation is necessary to set in motion dormant processes, this oil can be used to good advantage. These cases explain fully the clinical examples so often cited in which the administration of the oil undoubtedly brought-about good results.

In all other instances it is as clearly demonstrated that Cod-liver Oil acts as a positive alterative, by changing decidedly the oxidation processes of the system. But, unfortunately, the alterative effects are *in the wrong direction*,—decreasing the perfection of the proteid oxidation, and often depriving unfortunate patients of the single chance for recovery which they might otherwise have retained.

The indisputable fact that an overwhelming percentage of tubercular and pulmonary cases still die, no matter how carefully they are treated with Cod-liver Oil, is strong evidence against its utility and in support of the thesis that the inflexible laws of chemistry govern with absolute exactness the working of the animal economy.

The same might be said of its use in leucocythæmia, Hodgkin's disease, anæmia, etc.

We further find that the free ingestion of Oleum Morrhuæ rapidly decreases the urea in the urine and increases the incomplete or imperfect products of nitrogenous waste. This conclusion is also abundantly supported by clinical evidence.

Therefore it may be justly said that Cod-liver Oil is a dangerous remedy, and that, *the more perfectly it is emulsified*, the more detrimental it becomes.

The elegance of such a preparation may make it more palatable, and less likely to produce digestive disturbance and to be therefore refused entrance to the system.

This, however, only *makes the danger more certain*, because the individual will be enabled to take a finely prepared emulsion, where the plain oil would at once be discarded.

It also favors the absorption of an immoderate quantity,—thus exhausting the

oxygen supply and rendering the sub-oxidation of the proteid molecule with all its ill effects doubly certain.

That Cod-liver Oil disturbs digestion and prevents the utilization of other and more valuable forms of food-stuffs, is too well known to need further comment; except to say that, were man endowed with the protective and selective instincts of the animals, this natural circumstance would at once be acted-upon and the oil less frequently forced down the rebelling gullet.

REGULATION OF THE DIET.

One writer in the *Popular Science Monthly*, in commenting upon an article written by Dr. DAVIES under the caption "Proper Diet for Hot Weather," concludes his remarks by saying that "individual peculiarities and inherited habits of the system are prominent factors in the process of nutrition, and experience is a safer guide in regulating one's diet than any theories based on the chemical composition of the foods."

At the first glance this sweeping declaration appears to conclusively settle the practical side of this important problem, and also tends to annihilate the value of theoretical investigation.

This is certainly discouraging in a supposed age of scientific advancement. But, when these assertions are practically applied in the treatment of disease, they prove most unsatisfactory; as can easily be demonstrated by an abundance of clinical material.

First, however, it must be admitted by all that—while no one can define exactly what life is, and whereby, fundamentally, we "live, move, and have our being"—it is also equally certain that the introduction of specific chemical elements into the body, from infancy to old age, nourishes the growth, the development, and

the maintenance of that series of processes and phenomena which are commonly known by the name of "life."

It is also just as certain that, with advancing years, there comes a time when these chemical elements cannot be introduced into the system and utilized in sufficient quantities to sustain a so-called "independent" existence, and consequently the man or animal "dies." So long as the requisite amount of the food-stuffs can be digested, absorbed, and utilized, life will not become extinct—no matter what the numerical record in years chances to be.

The termination of an independent bodily existence is sometimes brought-about by a spontaneous process of chemico-pathological starvation, or wearing-out of the animal machinery: senile exhaustion. Or, life may be terminated by the influence of extraneous agencies which interrupt the normal chemical processes; when there are developed conditions known as disease.

Advancing a step further in this investigation, we find that none of the chemical elements contained in the food-stuffs—excepting some of the inorganic compounds—are primarily in a condition to be absorbed into the circulatory channels. Therefore, they must all be changed, either as regards their chemical or physical condition, by the fermentative processes called digestion.

When they have been so changed, they pass into the circulation and, for a time at least, aid in sustaining the growth and development of those conditions commonly spoken-of as "the vital powers."

Chemical physiology has clearly demonstrated that the inorganic substances are not, during or after absorption, changed in their chemical composition, but simply pass through the system as

foreign bodies, acting alone by their mechanical presence.

On the other hand, it is equally well established that the saccharine, fatty, and proteid elements are all split-up by the intervention of the oxygen atoms taken into the blood through the lungs, and that they are thereby converted into less complex bodies. This katabolic process constitutes the bulk of what we know of "life"; and it is commonly summarized under the name of "oxidation." The katabolins, or substances resulting from this oxidation,—such as: urea, uric acid, creatinine, taurocholic, and glycocholic acids, carbon di-oxide, water, sulphuric and phosphoric acids represented as sulphates and phosphates, etc., etc.,—are then excreted through the various natural channels.

If the chemical elements of all these katabolins are added together, the sum total will, in the mean, exactly equal the chemical elements contained in the food-stuffs absorbed, *plus* the number of oxygen atoms taken-in through the lungs.

If there is an excess of the total amount of intake and absorption over the amount eliminated, there is growth and development of the system, provided all the absorbed intake is perfectly oxidized. But if the oxidation is imperfectly effected, a simple increase in bulk is the final result of the excess of intake, but without corresponding increase in power.

On the contrary, if the quantity of matter eliminated in the form of katabolins is constantly greater than the absorbed intake, there is a decrease in the constructive processes and development, and the animal shrinks in weight and power; and if this condition is continued long enough, it will result in death by the process known as starvation. (If the intake

[ingestion] be *ample enough in itself*, but the *absorption thereof* insufficient to meet the outgo,—then the resulting condition is that technically known as "internal" starvation.)

The oxidation of the glucose yields heat in proportion to the amount of oxygen consumed; and the intensity of the yield is proportional to the rapidity of the oxidation process. The same is true regarding the oxidation of the fats and proteid elements.

While much is written regarding the storage of heat and the development of energy independent of the process of oxidation, the undeniable fact still remains that the suspension of all oxidation inevitably arrests the production of heat and the demonstration of energy.

To minutely trace and follow-up each of the atoms and factors involved in the vital processes, is practically as impossible as it would be for the man possessed of his hundreds of millions of property, to trace the location and movements of his every dollar. Yet that man knows that he is possessed of so much money or money-value, in bank or otherwise; that he can draw against it at will; and that it will yield results, as a rule, in proportion to the number of dollars called into action. If he draws faster from one end than he adds at the other, the pile will shrink; and vice-versa.

In like manner, the physiological chemist has the right to insist, as certainly as would the millionaire in his case, that the introduction of certain chemical elements will always yield certain definitely calculable results. These results may be varied by many extraneous conditions, all of which must be perfectly comprehended and appreciated in order to be fully master of the situation.

To obtain certain and uniform results

in prescribing a diet, the actual composition of the food-stuffs must be intelligently and fully taken into account. Vegetables which are complex in their composition — containing much proteid matter, some fat, starch, sugar, and mineral salts—must not be rated and computed as starch alone, as is often done by scientific writers and teachers. Each food-stuff must be given the full percentage value of all its actual nutrimental elements, both as to the ease of their digestibility and to their liability of being absorbed; *and then* the amount of oxygen required to completely oxidize them and make them most perfectly useful to the system must be computed.

Next, the composition of the urine must be carefully ascertained from day to day, to determine the character and the absolute and mutual proportions of the various products of proteid metabolism. At this point it may also be asserted that there is an abundance of indisputable clinical and chemical evidence at hand, which demonstrates conclusively that the composition of the urine can be changed from an abnormal state to a perfectly normal condition, or vice-versa, almost at will, by simply changing the diet and regulating the quantity and composition of the food-elements in accordance with definite and fixed chemical laws.

When these laws are accurately known and acted-upon, clinical experience teaches most emphatically two things:—

First. That while the patient is allowed to follow the dictates of the so-called “individual peculiarities and inherited habits of the system,” and to regulate his own diet, it is absolutely impossible to change at will or even at all, within a reasonable time, the composition of the urine, from its abnormal state to that

composition which is the invariable test of a normal condition of the system.

(That this method of self-regulating the diet has proved itself unsatisfactory to both the patient and the attendant, is abundantly substantiated by the urgent appeals of suffering humanity to tell them how to regulate their diet so that they can feel and be well,—Nature, instinctively as it were, telling them that a false diet is largely to blame for their ills.)

Second. That, by taking such an individual and regulating his diet in accord with the known and definite chemical composition of the food-stuffs, and in relation to the climatic conditions, to his general habits of life, and to the amount and kind of work to be performed by him, the most speedy and wonderful changes can be at once produced in his physiological processes. Abnormal and by-products, previously found in the urine in abundance, rapidly disappear from that fluid and are replaced by those indicative of a normal state of the system both as regards quantity and quality. While this is being accomplished, *the abnormal signs*, indicative of disease, *rapidly disappear*, and a perfectly normal state is fully established.

If the organs and tissues of the body have been damaged beyond repair before instituting such regulations, then only a partial recovery can be expected; but this is still preferable to an untimely death.

To accomplish such positive results, the practitioner must be in full command of the situation, and fully appreciate the power of exact chemical and physiological knowledge.

As a rule we are sadly defective in these two branches of the medical science, because even in our leading medical colleges the study of chemistry and physiology ceases with the second year.

This gives the student the idea that these two branches constitute one of the annoyances of the second year of medical study; and that, once passed, they are to be of no further practical value in medicine.

When the reaction shall come and these subjects shall be continuously taught and studied in their full relation to pathology and clinical medicine, until thoroughly appreciated and understood by all,—*then* definite methods in diet, based upon well-known chemical laws,

will take the place of the empirical and uncertain forms so often employed at the present time. When this advanced stage of medical science shall be reached, there is every reason to believe that diseased processes will be more rapidly and certainly cured; that pathologic mortality will be reduced, and physiologic mortality delayed; and that general longevity will therefore be greatly increased.

Notice.—The study on "FOOD VALUES" will be continued in next Number.—[ED.]

MEDICAL REPORTS

TO "MERCK'S BULLETIN."

TREATMENT OF TYPHOID FEVER.

By R. RODRIGUEZ-MÉNDEZ, M.D.,

Professor of Hygiene at the UNIVERSITY OF BARCELONA, (Spain).

In my opinion, the treatment of typhoid fever ought to aim at the following ends:

- 1.—To attack directly the typhogenic bacillus at its primary seat.
- 2.—To reduce the production of toxins.
- 3.—To eliminate the absorbed ones (preferably through the skin and the kidneys).
- 4.—To lower the hyperthermia, not only for its own sake but for the consequences it may bring-on.
- 5.—To sustain the strength of the patient by means of proper nourishment.
- 6.—To attend to the more important symptoms.

To accomplish

THE FIRST INDICATION,

treatment is begun by cleaning the digestive tube with a mild saline purgative,—exceptionally with an emeto-cathartic; and then disinfecting it persistently during the whole course of the disease and convalescence by the usual means—as, naphthol (preferably alpha-), Salicin, Salol, etc. The first cleaning and disinfecting may be done at once,—giving Calomel and Rhubarb and then go-

ing-on with the mentioned insoluble disinfectants. The bowels are *to be kept loose* (by means of enemata) if there is constipation, and the number of evacuations is to be reduced by means of the insoluble salicylates, charcoal, etc., if there is diarrhoea.

This indication is a most capital one, being at once preventive and curative;—its accomplishment, and the value of the agents employed, may be estimated by seeing a nearly clean tongue; only slight hyperæmia of the pharynx; little abdominal sensibility; little swelling of the liver and spleen; no very marked or continuous tympanites; frequent expulsion of nearly inodorous gases; regular, almost normal, not nasty evacuations.

As for

THE SECOND INDICATION,

—which is, to diminish the production of toxins,—it is accomplished by the fulfilling of the first; and its final results are: to free the digestive tube from irritant matter; to partly relieve the liver and perhaps the spleen in their rôle as destructors of poison,—not allowing their swelling—useful at first but noxious afterwards—to become ex-

cessive; and, to reduce the total quantity of irritating, toxic matter, and so defend the whole organism against these deleterious influences.

THE THIRD INDICATION,

—to early eliminate the absorbed toxins—can be accomplished by opening the two great outlets, the skin and the kidneys. The former, too often stopped up, must be *unstopped* by means of baths, *and then kept open* by baths and mild diffusibles; which latter need not be pharmacological ones—the alimentary ones doing that service quite sufficiently. The kidneys, too, are opened by the baths, and kept open by liberal use of milk and sugar,—both of them being powerful, sure, and safe diuretics. Moreover, the patient must be allowed to drink as much water as he likes, with or without sugar, and at a temperature of his own choice. When typhoid fever is quite developed, *this is the vital indication*; and, besides, it is the chief ætiological one during the whole course of the illness.

To accomplish

THE FOURTH INDICATION,

—which is, to lower the temperature of the patient when it rises above 39° C [102.2° F]—I make use of cool baths, of an initial temperature 5° or 6° less than that of the patient, who is to be lifted into the water on a sheet, and to be provided with a pillow, in order to be quite at his ease; then the tub is covered with a sheet or blanket, and after 5 or 6 minutes—when the temperature of the water will have risen 1 degree—a syphon is applied to draw-off part of the water, which is slowly replaced by cold water; so that, within 30, 60, or more minutes, the temperature of the bath will be 10° less than when the patient was put-in. During all the time, the patient's head may be kept wet with the water of his bath, if that be agreeable to him. Then the patient is wrapped-up in a thick sheet and transferred, horizontally, into his bed; when reaction sets-in, the sheet is substi-

tuted by the shirt, and then the patient is let alone. The bath may be repeated several times if the temperature rise again above 39° C.

When baths are not available for whatever reason, recourse is to be had to frequent enemata of plenty of water-and-vinegar; to ablutions of abdomen and breast with vinegar; to acidulous drinks in large quantities in order to promote free sweating.

THE FIFTH INDICATION,

—to feed the patient conveniently—requires taking into account the stage of the disease and the condition of the digestive tube. The chief part of the food must be fresh, raw, goats' milk,—by itself or with sugar, coffee, tea, rum, brandy, peppermint, cinnamon, bi-carbonate of sodium, lime-water, etc.,—according to the case, and changing always in order not to tire the patient. The quantity of milk ought to be from 2 to 5 pints a day, taking some every three hours. When milk is not well tolerated by the stomach, soda-water may be added, or its temperature may be lowered; and if this is of no avail, eggs are to be given—either raw, or with sugar-and-water.

I seldom prescribe wine, and would recommend, instead: weak coffee, tea, and effervescent lemonades. Alcoholic drinks have their special and precise indications,—in general, in hyposthenia,—and ought not to be misused.

In exceptional cases, raw meat may be given after a careful trial.

As for

THE LAST INDICATION,

there is seldom occasion to heed it much when the other indications have been duly met; if there occur any complications wanting treatment, the latter must be speedy and decisive,—having as little recourse as possible to pharmacology, and preferring always, when choice is admissible, the use of hygienic resources.

THE WEIGHT OF THE BODY IN ITS RELATION TO THE PATHOLOGY AND TREATMENT OF CLUB-FOOT.*

By A. B. JUDSON, M. D.,

Orthopædic Surgeon to the Out-Patient Department of the New-York Hospital.

I desire to present a few thoughts of a very practical kind, relating to the treatment of *talipes equino-varus*.

Beginning with

CONGENITAL CLUB-FOOT,

it is well to bear in mind that there is a vast difference between a *child recumbent* and a *child walking*. While the child is in arms the case is yet free from the complications and difficulties caused by the falling of the weight of the body on the deformed foot. These twelve months, more or less, are the most important year in the history of the case; because, in this period, the foot is to

the foot and ankle, at A, in Figs. 1 to 4, inclusive; and counter-pressure at two points, one on the inner side of the leg, at B, and the other at the inner border of the foot, at C. It is advisable to keep in mind that this simple instrument is a *lever*, because, if we know that we are using a lever, with its three well-defined points of pressure, we can make the apparatus more efficient than if we view it, in a more general way, as an apparatus for giving a better shape to the foot.

I use a little brace made of sheet brass,—doing the work with a few simple tools. An advantage of doing the work one's self is, that there is no room for doubt as to where the blame lies if the apparatus does not work well. Two curved disks, B and C, Figs. 3 and 4, are riveted to a shank, D, and thus is formed that part of the brace which



FIG. 1.

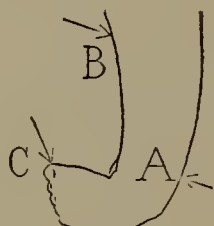


FIG. 2.



FIG. 3.

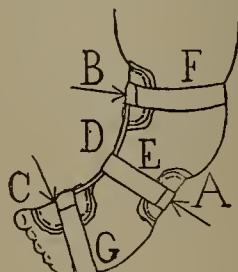


FIG. 4.



FIG. 5.

be changed so that, when the child begins to walk, the use of a slight walking-brace, exerting only a moderate degree of force, will convert the weight of the body from a deforming to a correcting agent. During these months of recumbency, with the weight of the body out of the way, with all the tissues soft and formable, and the foot more than doubling in size with the growth of the child, there is every reason to expect to succeed in what we undertake, provided time enough be given to the case, and faithful attention to the details.

THE APPARATUS

which I have conveniently used, to effect this reduction before the child learns to stand, is a simple retentive splint which acts as a lever, making pressure on the outer side of

applies the two points of counter-pressure; while, on the other hand, the point of pressure is brought into action by a third disk, or shield, A, which is drawn tightly against the outer side of the foot and ankle, and held in place by a strip of adhesive plaster, E, which includes the limb and the piece which connects the two disks, B and C. The disks are lined with two or three thicknesses of blanket, easily renewed, when necessary, with a needle and thread. These braces are so cheap and easily knocked together, that it is nothing to apply new and larger ones,—using heavier material for the shank as the child grows. In general, three sizes will be enough, the shanks being 12 gage $\frac{3}{8}$ in. wide, 14 gage $\frac{1}{2}$ in. wide, and 16 gage $\frac{5}{8}$ in. wide. The disks are conveniently made from 22 gage $1\frac{1}{4}$ in. wide. The rivets are copper belt rivets No. 13. A lip turned

(*) Read before the AMERICAN ORTHOPÆDIC ASSOCIATION, New-York, September 21, 1892.

on the edges of the disks, with the flat pliers, gives stiffness to the thin brass and protects the skin from the rough edge. If more easily obtained, tin disks, light bars of iron or steel, and ordinary iron rivets, would doubtless answer.

THE BRACE IS APPLIED

with three strips of adhesive plaster. The upper and lower pieces, F and G, Fig. 4, are simply to keep the apparatus in place, which they do effectively if ordinary gum plaster is used, while, by drawing the middle strip, E, tightly over the shield, and straightening the brace from time to time, the deformity is gradually and gently reduced. At each re-application the brace is made a little straighter than the foot at that stage. This may readily be done by the hands, and then the adhesive strip is to be tightened over the shield, till the shape of the foot agrees with that of the brace. After a few days, the brace is to be made still straighter, and again re-applied, and made tight till another point of improvement is gained. The brace is applied very crooked at the beginning of treatment, as in Figs. 3 and 4, and is straightened from time to time, and a longer brace applied as the deformity is reduced and the patient grows. It should be removed every week, or two weeks, and an interval of a few days allowed for freedom from the brace, when the mother is advised to manipulate the foot constantly—using as much force as she will—in the direction of symmetry. Manipulating the foot during these intervals is of great importance, as cases have occurred in which varus and equinus have been entirely overcome by the mother's hand alone.

By this simple and prosy treatment—carried out systematically and without haste, or violence, or pain—the foot, unless it is a frightful exception, may, with certainty, be

CHANGED FROM VARUS TO VALGUS.

At the same time, the tendo Achillis is lengthened till the position of the foot is

near the norm, or at right angles with the leg, as the result of manipulation, and giving the brace from time to time a partly antero-posterior action. Figs. 3 and 4 show approximately the shape of the brace at the beginning of treatment, Figs. 5 and 6 when the varus is reduced, and Figs. 7 and 8 when valgus has taken the place of varus. The foot, in this latter stage, may not hold itself valgus, when left to itself; but, with almost no force, and with one finger, it may be pushed into valgus; and in this condition it must be when the child begins to walk; and then another stage of treatment begins.

WHEN THE PATIENT BEGINS TO WALK

we have a new difficulty. It is now seen that the weight of the body, falling on the tender and ill-formed foot, will, if not properly



FIG. 6.



FIG. 7.



FIG. 8.

directed, defeat all our efforts. Let us, for a moment, consider the mechanical environment of the human foot. In the first place, the corporal weight, which the quadruped distributes among four pedal extremities, falls, in man, upon two. Again, the small floor area covered by the feet, and their slight structure, seem unequal to the task of supporting the towering frame above them, which, in some cases, almost resembles a pyramid resting on its apex. And when we observe the effect of active locomotion, we see weight and momentum combine in an apparent effort to crush and destroy. And furthermore, when extraneous weights are added and the strain prolonged, as in the case of the burden-bearer among savage

tribes, or the infantry soldier on a forced march, the endurance of the foot excites wonder.

It is not strange that the feet are subject to ailments: to blisters, bunions, ingrowing nails, hallux valgus, hammer toes, loss of the arch, weak ankles, painful affections of the metatarsus, perforating ulcers, osteitis, and the varieties of talipes. The wonder is, that they are not permanently disabled soon after walking is begun, and certainly when the adipose tissue of the body takes on the development which accompanies age and good living. The gourmand, Savarin, said that, among the works of creation, the design of the human foot was a conspicuous failure. Considering the immense weight

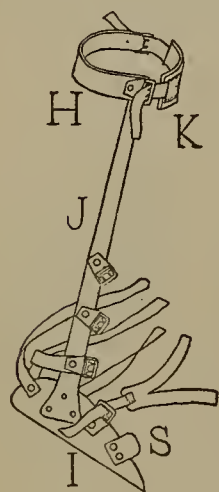


FIG. 9.

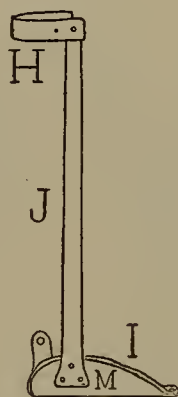


FIG. 10.

carried by the foot, it is evident, however, that only the most perfect natural adaptation of mechanics has enabled this insignificant member to perform its superlative functions, and that great caution should attend all procedures having for their object its artificial reconstruction.

It is also sufficiently evident that the correction of club-foot by mechanical means, while the patient continues walking, is

A PROBLEM BESET WITH DIFFICULTY.

We have, however, a luminous ray of hope and encouragement in the observation that, in talipes varus, there is an important boundary line between deformity and the norm. If the foot is held in some way, now to be considered, on the right side of the

boundary line, each step forces it in the direction of valgus; and the increasing weight of the child is a powerful force acting in the right direction—or away from varus—so long as the foot is held, though never so little, in the direction toward symmetry. It may be said that the child stamps his foot straight. If, on the other hand, the foot is held, or allowed to fall, on the wrong side of this line, though never so little, each footstep is a blow, driving the foot more and more into the varous position.

This point may be illustrated by the hand placed with its ulnar border on the table. If considerable pressure be made on the table, by the hand so placed, it becomes evident that there is a boundary line between pronation and supination. If the hand is pronated, never so little, additional pressure will force the palm into pronation; which represents valgus in the foot, and if the hand be supinated in the slightest degree, additional pressure will force the palm into complete supination, which represents varus in the foot.

By the application of this idea, the weight of the body may be made

A BENEFICENT, INSTEAD OF A HARMFUL, FACTOR in the progress of a case of talipes varus, and the walking-brace should be constructed with this in view. It should be made of steel, and by an instrument-maker. One of its functions is to act as a lever, but the leverage is applied not chiefly to overcome the deformity by direct force, as in the retentive brace above described, but to hold the foot on the right side of the boundary line above mentioned, so that the weight of the body may straighten the foot—or overcome, the varus—in a direct and forcible manner, without general or local inconvenience.

THE WALKING-BRACE

consists, as usual, of leg-band, H, Figs. 9 and 10, foot-piece, I, and upright, J, riveted firmly together. A movable joint at the ankle should be discarded, as it undermines

the lever by introducing an element of instability, and, in this brace, serves no good purpose. Mild steel alone should be used, to facilitate alterations in shape, as point after point of improvement is gained, and to make easy the shifting of buckles and straps, as may be required, all of which may be done by the use of a few simple tools. The upright is to be on the inner side of the leg, as in Fig. 14. The upper part of the brace makes counter-pressure on the inner side of the leg, but it has another important function, in previously neglected cases, which is secured by the steel band passing across the back of the leg, to which are fastened two buckles for the attachment of a piece of

padded strap crosses the leg near the tubercle of the tibia. This mechanical effect is similar to that of the brace—shown in Fig. 11—used in the treatment of paralysis of the muscles of the calf, resulting in talipes calcaneus.

THE UPPER PART OF THE BRACE

is also to be considered in another light, as follows :—In previously neglected cases it is well to incline the upright 15° , or 20° , or more, backward from the vertical of the foot-piece, as is shown in Fig. 9. Although correction of the equinus is postponed by this inclination of the upright, we are thus enabled to apply a better leverage against the varus ; and when the varus is reduced, and the time arrives when the equinus is to be corrected,

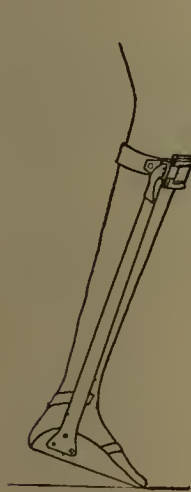


FIG. 11.



FIG. 12.

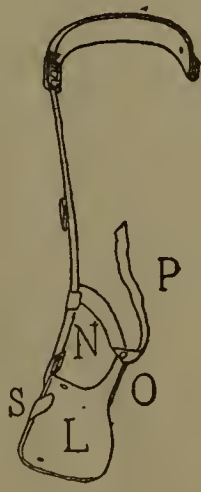


FIG. 13.

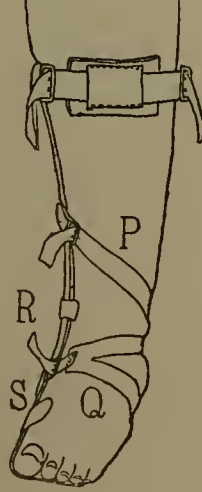


FIG. 14.



FIG. 15.

webbing, K, in Fig. 9, which passes across the front of the leg. The steel band should make no pressure on the limb, as its use is simply to furnish attachment to the buckles. A piece of webbing spanning the front of the leg in this manner, and carrying a pad, performs an important service in cases—like the one shown in Fig. 12—in which, from previous neglect, the varus has not been reduced before walking begins. It transfers a part of the weight of the body from the anterior part of the sole of the foot, where it interferes with the correction of the varus, to the upper part of the anterior surface of the leg, where it is powerless to interfere with the treatment. That the weight-pressure thus transferred is considerable, is shown by the callus and bursa which appear where the

this backward inclination of the upright is to be lessened from time to time, till the vertical is reached, as in Fig. 10, or till the upright has an inclination forward, allowing the corporal weight to fall more and more on the anterior part of the sole of the foot, and to gradually lengthen the tendo Achillis. The vertical upright, Fig. 10, is to be applied at once to patients in whom the deformity has been corrected before walking begins.

We will now pass to a consideration of the other end of the brace,

THE FOOT-PIECE,

which is to be made of sheet steel ranging from 18 gage, for a child learning to walk, to 13 gage for an adult. It has the usual tread, L, Fig. 13, and riser, M, Fig. 10. The heel-cup is formed by a piece of webbing,

N, Fig. 13, passing behind the heel, from the lower part of the upright to a spur, O, Fig. 13, which projects upward from the back part of the outer border of the tread.

Viewing the apparatus again as a lever for the forcible reduction of varus in a previously neglected case, counter-pressure is made along the inner border of the foot, and on the upper part of the inner side of the leg, while pressure is made by one strap, or more than one, riveted and buckled to the foot-piece and the upright. But one strap is shown, P, in Figs. 13 and 14. This will be sufficient in the case of a child whose varus has been corrected before walking begins; but in a previously neglected patient—in whom the varus has yet to be reduced while the child is active on his feet—two, three, or more straps may be added, as shown in Fig. 9, partly encircling the foot, ankle and leg,—the positions of the buckles and the straps being where they will assist most efficiently in opposing the varus and holding the foot in the best position to receive the weight of the body.

These parts of the apparatus may be shifted many times, with advantage, in the treatment of a given case of unusual difficulty; and, in addition, a most efficient agent for applying continuous pressure is found in a strip of adhesive plaster, Q, Fig. 14, sewed to a piece of webbing, R,—the plaster partly encircling the foot and ankle, with a single tail, or two tails, as may be required, and the webbing being drawn tightly and buckled to the inner side of the riser. This device does more than simply to increase the amount of pressure; it also keeps the heel down on the tread of the foot-piece; and, more important still, it gives the foot a rotation outward and thus directs the sole of the foot forcibly toward the ground, in the best position for making the weight of the body a corrective instead of a deforming force.

The riser of the foot-piece may also, in previously neglected and difficult cases,

carry an ear, S, Figs. 9, 13, and 14, made of sheet brass, which is to be bent downward over the first metatarso-phalangeal joint, to prevent the inner border of the foot from overriding the edge of the riser. The foot-piece is to be lined with adhesive plaster, in several thicknesses, if necessary, to prevent rust, and with a piece of leather fastened to the tread and spur with copper rivets, as shown in Fig. 10. In practice the details demand as much attention as the principles of treatment. The brace is to be applied over the stocking (the strap, R, passing through a hole cut in the stocking), and is hidden by the patient's trousers and shoe.

We will now consider

THE UPRIGHT OF THE BRACE.

It is a flat, tapering bar of mild steel and, when first applied to a previously neglected case,—such as shown in figure 12,—should have a curve resembling that of the varus foot. The bar, though sharply curved, as in Fig. 13, should, however, be somewhat straighter than the foot when the latter is forced manually into its best position. The multiple straps, shown in Fig. 9, should then be buckled and tightened daily till the continuous leverage has partly reduced the varus. The upright bar should then be straightened somewhat and another point of improvement be gained,—the patient in the meantime following his ordinary pursuits without interruption. In due time the upright bar, and the foot itself, will both be straight, as seen in Figs. 15 and 16; in other words, the varus will be reduced.

The upright should then be bent, from time to time, in the direction of valgus, as seen in Fig. 17, and the persistent and gradual effort resumed until the foot has been pushed, or pulled, or pried, over the boundary line, into the domain of valgus, as seen in Fig. 18.

These efforts would not be necessary if the varus had been converted into valgus before the child had learned to stand. In very badly neglected cases the interference

of the weight of the body with the treatment may be prevented by the recumbent position, or the use of a high sole on the well foot and the ischiatic or axillary crutch, until the varus has been materially reduced. In all cases when the child is old enough to be docile, domestic instruction and drill in eversion of the foot, and in the proper management of the foot in locomotion, should be a part of the education.

As soon as

THE FOOT HAS REACHED THE VALGOUS SHAPE, —whether it be at the moment of learning to walk, or only after prolonged effort in a neglected case—a curious effect will be observed. It will be seen that the outer bor-

der of the foot has been neglected from the period of recumbent infancy, when deformity of this kind is the most easily overcome. If the varus were always corrected before the child learns to stand, then the only use of the walking-brace would be, as shown in Figs. 19 and 20, to gently hold the foot in valgus, so that the weight of the body shall be sufficient to lead the child to grow up with a foot practically normal. As such a child outgrows the brace, a larger one is to be made; and, when three or four years old, the foot will, without the help of the brace, strike the ground so fairly that, for two or three years, all treatment may be suspended. The patient is to be observed from time to

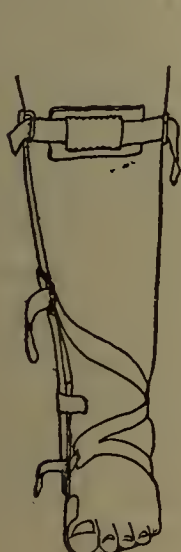


FIG. 16.



FIG. 17.



FIG. 18.



FIG. 19.



FIG. 20.

der of the tread of the foot-piece is raised from the ground, as seen in Figs. 19 and 20, and that we have secured, in an easy manner, the effect which is sometimes sought by building up the outer border of the sole of the patient's shoe. This is a welcome and powerful ally in our attempts to hold the foot in a favorable relation with the weight of the body and the ground.

The walking-brace has been above described as though its chief use were to reduce varus, which has become more or less confirmed by the habit of walking on the outer border of the foot. Strictly speaking, such cases should never occur. They are, however, too common, and always indicate

time, however, and, as the foot grows in its original inclination to varus, it will, after the lapse of two or three more years, have to be kept in proper position, under the rapidly increasing weight of the body, by a walking-brace adapted to its needs, for another period of two or three years. When the foot is full-grown it will be shapely in appearance and practically perfect in its ability to perform all the duty of a foot congenitally normal.

Although *congenital* Club-foot has been chiefly kept in mind in the above pages, the views expressed in regard to the influence of the weight of the body are applicable also to

TALIPES VARUS OF PARALYTIC ORIGIN.

In this affection, at an early stage, and

before the foot has lost its flexibility, a simple walking-brace is needed, as in Figs. 19 and 20, to properly direct the action of the weight of the body on the paralyzed foot. At a later period, if this measure has been neglected, and the foot has been allowed to become varous, and more or less inflexible, the case will require more attention, and probably prolonged effort, with multiple straps and adhesive plaster, to carry the foot across the line between deformity and the norm, to the position in which the weight of the body shall be a correcting and not a deforming force.

38 E. 25th St., NEW YORK CITY.

SOME EXPERIENCES WITH SCORBUTUS.

By THOS. H. MAYO, M.D.

If I write upon the above subject, it is not because I have anything new to say upon the history and symptoms of this disease in its most formidable and malignant form; for I have never seen it in that form: and, had I done so, the ancient writers who saw it prior to 1795 had thoroughly covered the ground. Scurvy, since that time, has ceased to be the deadly scourge which it was prior to the discovery of its true treatment,—that is, the use of Vegetable Acids.

Admiral Anson, of the English navy, was sent out about 1740, around Cape Horn, to intercept and destroy the Spanish shipping on the western coast of South America; whence he returned via the Cape of Good Hope. He lost four-fifths of his men by this vile plague. In the siege of Gibraltar, from about 1783 to 1790, the loss of the garrison was greater from Scurvy than from the enemies' missiles. In fact, in every long siege or voyage in those days, the people would suffer more from this plague than from any other one cause.

Since the beneficial effects of vegetable acids, both in prevention and cure of the disease, have been discovered, the latter has been almost banished from the world. The result is, all learning upon that subject

HAS BECOME ANTIQUATED.

I never heard it treated-of in the lecture-room; and our modern treatises on medicine dismiss it with scant notice.

Thus, without prior information on the subject, except what I had seen in the history of long sea-voyages,—I, fresh from the medical school,

WAS TOTALLY UNPREPARED

to recognize it, when I first met it in October, 1849, in California.

My first case was in Jackson's Creek: I was called to see a man of about thirty years who was complaining of pain in the limbs. Found some swelling about the ankles (no tenderness upon pressure); pulse slow, soft, and rather small; breath somewhat offensive; stools liquid, reported to be very offensive, but not very frequent; urine high-colored. The patient's complexion was peculiar, of a bronze color, with a greenish shade. He complained of great weakness in the knees. (This complaint I afterwards so constantly met, that I came to consider it idiopathic.) The tongue was slightly furred, slightly flabby, and appeared too large. The man was much depressed, with nostalgia evidenced by his conversation. His face did not indicate emaciation, but slight œdema; appetite very good.

The diagnosis was "chronic rheumatism"; for which I treated him for a few days. Cleared out his bowels with a mercurial cathartic, followed with a preparation of guaiacum.

FINDING NO IMPROVEMENT,

and he calling my attention to a spot of ecchymosed blood on his hand, I examined the skin of his body thoroughly, and found several spots of ecchymosis on the sacrum and over the lower extremities, and also a small abrasion over the tibia. (The difference between ecchymoses of Scurvy and Purpura is, that the latter are smaller, better defined, and somewhat raised; while the former are diffused, covering a larger surface, and mottled in appearance.) I now ex-

amined the gums, and found them œdematous, too dark in color, and bleeding readily on slight abrasion.

I changed my diagnosis,—being fully convinced that I had a case of Scurvy.

STOPPED ALL DRUGS;

citric acid—of which I had some with me—I gave him *ad libitum*, in the form of lemonade. Sent to Sacramento City (some 70 miles) for lime-juice (which cost me \$5 a quart bottle). I found a few bunches of wild celery on the creek bank, which he ate with avidity. The change in a few days was remarkable: his spirits rose; the ecchymosis faded rapidly; in six days the swelling of the legs disappeared. Strength returned, so that he would walk a considerable distance; and the breathing was much improved. In three weeks I sent him to “The Mission,” so that he could get an abundance of grapes, fresh from the vines. He wrote me two weeks later, that he was about as well as ever. I never met him afterward.

I have thus given a minute account of the first case I ever met, and also of my mistake in diagnosis,—hoping that others may profit by my error. I saw a number of other cases, all (with one exception) milder than the one I have described;—the symptoms varying somewhat.

THE FIRST SYMPTOM

that would attract my attention, was weakness in the knees, ecchymosis—probably from heart-weakness,—at first quite slight,—and swelling of the ankles; also, difficult respiration on exertion—probably from heart-weakness,—frequently accompanied with diarrhœa or dysentery. I had invariably (if the symptoms above mentioned were present) to give anti-scorbutics before I could entirely control the bowels; and not infrequently the lime-juice would cure the disease without further medication (though this was not always so: for sometimes I had to superadd further medications for the *local* troubles).

The above case had convinced me that there was further danger to be apprehended in this direction: and I carefully guarded my company of thirteen men, by causing them to use, for food, all the edible wild green vegetation that could be procured. Instead of using salt meat, I caused them to buy fresh beef, which we rubbed-over with corn meal and hung in the top of a tree. Whenever there was a fresh cut made from it, we rubbed the place with meal. This was to prevent the “yellow jackets” from eating it. If we neglected to do this, they would eat out a place as large as a man’s fist in the course of twelve hours’ daylight. So great was the dryness of the air, that meat would keep till it dried up, without putrefaction, from the first of June till the winter-rains commenced, generally about the first of December; after that, it could be kept no longer than in the Eastern States.

THE RESULT OF THE PRESCRIBED DIET

was, that, as long as the company kept together, we had no Scurvy—some ten months (though I was treating it, weekly, almost, in the neighboring camps). About the first of August, 1850, while on the Trinity river, several of our men left the company. In October, 1851, while I was in San Francisco, one of them came to me for treatment.

His was the worst case I had seen. He had diarrhœa, with stools frequently bloody as from hæmorrhage of the bowels; he could not walk fast or up-hill without hard panting; knees weak, legs swollen, several large ecchymotic spots; ugly ulcers on tibia, covered with something having the appearance of venous blood. Teeth loose; gums swollen, and bleeding freely;—had had hæmorrhages from the nose. Complexion greenish bronze. Appetite unimpaired. I ordered lime-juice lemonade as his sole drink; raw Irish potatoes scraped and made into salad with lemon or lime-juice, pepper and salt to taste. The sores were dressed with a cold poultice of raw Irish potato, scraped.

He reported next morning that his nocturnal pains had not been nearly so bad as usual; also, that he felt generally better. Pulse not changed: 60—small and soft;—standing or walking ran its rate up rapidly. I cautioned him

TO KEEP QUIET,

and free from excitement, as there was great danger of heart-failure; as had frequently happened to Anson's men, who died from being moved from shipboard to shore at Juan Fernando island. I could on that occasion see no further change, except that the poultices had cleaned-out the ulcers on the tibia, which did not look so dark. His complexion was more cheerful,—due as much probably to my positive assurances that he would soon recover, as to the medicine.

I remained in San Francisco ten days, before starting for the Sandwich Isles, and saw and examined this man (J. S.) repeatedly. His complexion changed to almost natural; the swelling of the legs disappeared; the ulcers were more than half healed, and were still healing; breath but slightly offensive; he reported his bowels not troubling him at all; strength much improved; pulse 68, much fuller and stronger. I heard from him about one year later: he reported that he was promptly cured, gums perfectly firm.

I omitted to state that, in my cases, I used a

MOUTH-WASH

of whiskey, without dilution, several times a day, to be kept up for several weeks after recovery.

In 1858, I settled in the prairie belt in the southern part of Lowndes county, Mississippi. The land was very rich and productive, but sticky, and roads almost impassable in the winter and early spring. The land was owned principally by rich planters who lived in Columbus, the county seat, and who controlled their plantations through overseers. This land was devoted almost exclusively to raising cotton, corn, and hogs.

The negroes, as a rule, were well fed, clothed, and housed. They each received 1 peck of meal and 4 pounds of pork per week, with about one-quarter of an acre of ground for garden, and the privilege of raising chickens. The young children, who did not go to the field, received a supply of milk from the overseer's house. Each of these plantations had from 25 to 100 negroes on it, and more than two-thirds of the area was in cultivation.

To one of the best of these plantations, owned by Major B——, I was called in July, to prescribe for a negro man, about 45 or 50 years old. He was reported to me as having chronic rheumatism, and having been

WORTHLESS FOR SIX MONTHS;

had taken a variety of medicine, but had not been seen by a physician, as the overseer thought he could cure him. His pulse was 58; temperature not excessive (this was before we had fever-thermometers); countenance stolid; skin flabby and ashy; ankles swollen; and an unhealthy ulcer on each tibia, the size of a dollar, looking dark, as though the circulation was too slow; gums slightly tumid, soft, and too dark. He complained of constant pain in the legs, and some occasional severe pains in the chest; these were always worse at night. Appetite normal, drew his rations regularly, and said he ate them. He had been complaining for some weeks, gradually getting worse till all exertion created dyspnœa. He would not drink milk or eat vegetables, except dried peas and onions.

(I should have stated, in my description of the country, that there were

NO FRUIT-TREES

on these plantations.)

After a careful examination of this case, I pronounced it Scurvy; though, owing to the color of the man's skin, I could see no ecchymotic spots. (As a rule, I do not think *the mouth* is much affected till the disease has lasted some weeks. Therefore—

although considering it an important symptom when present—its absence does not prevent me from pronouncing a case to be Scurvy, provided the other signs are there,—swollen ankles, tired knees, fetid breath, offensive alvine discharges, and, when exercising, difficult respiration.) I ordered this man to be sent to his master in Columbus, who had an abundance of fruit and grapes,—so that the latter could see that he ate abundantly of them, particularly of grapes. Gave no medicine. In six weeks, he was in fine health, and made a good hand in gathering the crop.

In the following spring I was at Mr. D——'s plantation and was detained, in attending to a case, till after supper. While eating, the overseer said he had

“A STRANGE CASE”

on the place, and wished me to see it. He said one of his best hands, as early as sundown, or just before, would always commence cutting-up the cotton, claiming he could not see it; though he seemed all right during the day. As soon as the sun got low, he had to send him out of the field. He asked me if I had ever heard of such a case. “Yes,” said I, “he has nyctalopia, or night-blindness.”

The man was called-for. Though sent to the house half an hour before sundown, he had not yet reached there; notwithstanding he was, when he quit work, not more than half a mile distant,—the house in plain view through the open fields. Two men were sent out to hunt him up, and, by hallooing, they soon located him and brought him in. He had been found totally

LOST IN AN OPEN FIELD

where he had worked for years,—unable to find his way home. Upon examination, I found the patient of generally healthy appearance, but with dull countenance; pupils about one-half dilated and totally insensible to the light. He could point to the light when told to do so, but could distinguish no objects, although I had the room well light-

ed. His gums were spongy; breath fetid; ankles swollen slightly, and pitting on pressure; he complained of weak knees, and of short breath—when hurried.

Examined his eyes next morning, and found that the pupils expanded and contracted to light, but in a sluggish manner. He said he could see very well when the sun got above the trees. I treated him with lime juice, potatoes, and such fresh vegetables as could be found. The recovery was slow but steady, so that after two months there was no sign of disease. I do not think my directions were well carried out at first, because the overseer did not have confidence in my treatment, as I gave no medicine. When the patient began to improve, the overseer became convinced, and carried out the directions more perfectly.

COLUMBUS, Miss.

NEPHROTOMY AND NEPHRECTOMY SUCCESSFULLY PERFORMED ON SAME PATIENT FOR MULTIPLE ABSCESS.*

By G. S. PECK, M.D.,

Consulting Surgeon YOUNGSTOWN CITY HOSPITAL.

J. C., æt. 20, American; occupation, office-boy. — Family history good. No tubercular trouble.

PAST HISTORY.

When six years of age, fell from the second story, lighting astride of a joist in first story, causing free hæmorrhage from bladder and suppuration in both groins.

At eleven was kicked in the back by a playmate. Always after injury complained of more or less severe pain in region of left kidney. A few months later had an attack of scarlatina, with kidney complications.

At seventeen had an attack of measles.

At eighteen received an injury to left leg, causing necrosis or caries of tibia from ankle to knee-joint.

At nineteen had an attack of non-specific iritis, lasting eight or nine weeks.

March 25, 1891, had a severe chill, fol-

(* Read before the AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS, at St. Louis, Sept. 20th, 1892.

lowed by fever; high-colored urine, diarrhoea, increased pain in back, and inability to lie down.

March 27, 1891, admitted to City Hospital, presenting marked symptoms of typhoid. The case was diagnosed typhoid fever and treated as such some four weeks, temperature reaching as high as 104; pulse ranging from 72 to 96.

April 22, the thirty-first day of illness, the attending physician detected a fluctuating tumor in left hypochondriac region. I was asked to see patient in consultation, April 25th. Diagnosed abscess of left kidney and advised Nephrotomy.

April 26, saw patient again. During the preceding twenty-four hours he had passed two quarts of urine containing a large amount of pus. Confirming my diagnosis, tumor decreased in size and other symptoms improved.

FIRST OPERATION.

May 6, 1891, forty-fifth day of sickness, (after thorough antiseptic preparation) I made a simple oblique lumbar incision three-and-one-half inches long, down to the kidney; packed sponges in the wound around kidney. I then made an incision two inches long through the posterior or convex border and evacuated about three pints of pus.

After exploring for calculi and finding none, I stitched the sac to the margin of the incision with four catgut sutures; thoroughly irrigated the cavity with a 1:4000 mercury-bichloride solution; sutured the upper and lower angle of incision; packed the sac and wound with iodoform gauze, covering the whole with antiseptic dressing held in position by a dairy-cloth bandage; and put the patient to bed in good condition. (Two drainage-tubes had been inserted.)

May 7, 8 A.M., has passed one pint of urine.

May 8, 8 A.M., has passed one quart of urine during the past twenty-four hours.

May 22, sixteenth day, removed upper drainage-tube.

May 30, patient sat up the first time.

June 6, removed lower tube.

June 25, wound entirely healed with the exceptions of two sinuses along drainage-tube tracts; redressed and irrigated daily.

Oct. 1, 1891,—five months after Nephrotomy,—the sinuses, which had been cleansed daily with antiseptic solutions, were still discharging pus freely, the microscope showing traces of pus in the urine; the patient suffering more or less pain, with increased temperature, at times.

I advised a complete removal of the kidney. After my explaining to patient the dangers of the operation, he consented.

SECOND OPERATION.

Oct. 6, I again etherized the patient, curetted the sinuses, and made a simple oblique lumbar incision four inches long,—same as in the Nephrotomy. After exploring the kidney, I made a second incision two and one-half inches long, beginning about one inch in front of the posterior extremity of the first, and running vertically downwards. The adhesions were numerous and very firm; and it was with considerable difficulty I released the kidney from its surroundings. I then passed an aneurism-needle, armed with a double ligature of silk, through the pedicle between the ureter and vessels,—ligating the ureter separately and the vessels *en masse*. I then lifted the kidney as far as possible out of the wound and ligated the whole pedicle. After cutting away the diseased organ, I irrigated the wound and sinuses with a 1:2000 bichloride solution; inserted a large rubber drainage-tube; closed the vertical incision with silk-worm-gut sutures; packed the wound with iodoform gauze, and applied antiseptic dressing.

Upon examination, I found the remains of the kidney to contain three distinct abscess cavities, one of which contained about four ounces of pus.

Oct. 6, 8 A.M., before operation: temp.

98½, pulse 89.—4 P.M., temp. 101, pulse 130, resp. 36.—8 P.M., temp. 101¼, pulse 140, resp. 40. Pulse weak and thready, expression bad, face anæmic; patient restless, vomiting frequently, and complaining of severe pain in wound. Gave hypodermic injections of digitalis and strychnia every three hours; whiskey by enema every two hours; hypodermics of morphia every four hours until quiet.

Oct. 7, 8 A.M., temp. 100¾, pulse 126, resp. 30. Has passed twelve ounces of urine during the last twenty-four hours.—8 P.M., temp. 102¾, pulse 130 and stronger; expression much better; wound dressed.

Oct. 15, removed drainage tube. Wound has been redressed daily.

Oct. 27, sat up in bed.

Nov. 7.—The patient has made an uninterrupted recovery. Has gained in flesh and strength, and is allowed to sit up all day.

Dec. 1, wound completely healed, with the exception of a very small sinus which necessitates dressing every third day. Has resumed his duties as a nurse in the Hospital.

Thorough antisepsis was observed before, during and after both operations.

Sept. 1, 1892. Sinus still remains open; daily amount of discharge about one dram; average amount of urine passed daily, one quart.

Has been able to perform all his duties as a nurse.

YOUNGSTOWN, O.

THE "DE-NOVO" THEORY REVIVED.

By GAVIN S. SCOTT, M.D.,
Diplomate of Public Health (LONDON).

I have observed in the medical journals, lately, evidences pointing to the fact that

THE GERM THEORY OF DISEASE

is beginning to pale on the minds of not a few of our medical brethren. The following notes are written principally for the benefit of these unfortunates, who no longer find any pleasure in studying the bacteriological world in its various manifestations. They may open-up what has been long a dead

field of thought, and so ward-off that atrophy of cerebral matter which is the inevitable result of disuse.

I have been debarred from references, and my notes are meagre, but they have been written more as indicating a line of thought than with any attempt at giving information.

My belief is, that all communicable diseases

HAVE A SPONTANEOUS ORIGIN

in Putrefaction or Decomposition, and that the efficient cause is, at least in many cases, *an unorganized ferment* or chemical product.

At the present time the question of the influence of the bacillus and allied organisms in the causation of disease is an all-absorbing one. Bacteriology now forms a distinct branch of study in most of our medical schools; and yet, when we come to study closely the literature bearing on the subject, and note the

CONFLICTING THEORIES AND STATEMENTS

of different observers, it seems to me that an importance has been attached to these organisms to which they have no absolute claim.

I do not mean to say positively that they are not the active agents in some infectious or contagious diseases; but that, with the view of upholding or proving a certain theory, the supporters of this theory fail to prove that the bacillus is the active agent in many diseases attributed to it; and studiously overlook other and more important facts ever co-existing with and surrounding the origin of all epidemic, endemic, contagious, or infectious diseases,—a study of which would probably lead to a better understanding of their ætiology and prevention, or—subvert the germ theory entirely.

AN INTERESTING CASE OF GONORRHOEA, an outline of which follows, first drew my attention to this question.

In the early part of last May, two young men came to my office, suffering in each instance from a typical attack of gonorrhœa.

They were room-mates, and one had contracted the disease five days before the other, and both from the same source: I. W. Though both surmised the nature of their complaints before they saw me,—when I congratulated them on the correctness of their diagnosis they felt indignant with I. W., and taxed her with being the cause of their trouble. She in turn became indignant, and,

TO PROVE HER INNOCENCE,

expressed her willingness to submit to a medical examination. It was under these circumstances that I saw her on May 10th, the day after the visit of the two young men.

Her chemise had none of the characteristic stains of an acute attack, though she had evidently not changed her linen for some days. Yet it must have been recent, if it existed at all; for these young men had indulged regularly with her for months previously, with impunity,—not having employed any precautions whatever.

On ocular examination, the mucous membrane of the vagina presented its normal pinkish hue. The secretions were natural in color and seemed to be a little in excess, but did not exceed what in other cases would be called a moderate leucorrhœa.

The os was normal. According to her report, she never used any injections; never suffered from pain or discharge, except at the usual menstrual periods.

I washed the vagina thoroughly with warm water, mopped-out the cul-de-sac with a new sponge, and finally rewashed with cold water. This was all the treatment: I avoided the use of all germicides or antiseptics.

During the three weeks following I watched the case closely; and not one of the three men who were intimate with her in that period contracted venereal disease, nor had she any local symptoms of it.

As the two male patients solemnly swore that they had never been with any other woman, the interesting feature in this case is,

THE SPONTANEOUS APPEARANCE OF THE DISEASE. I. W. must have retained the contagium in her vagina for at least five days; no pus was visible: it could hardly have been gonorrhœa, for the contagium was washed away; yet it gave rise to gonorrhœa. If it did arise from a previous case, then of course that is an end to the discussion; but the evidence is against that; and it seems to me that the conditions were favorable for the spontaneous origin of venereal disease.

The woman indulged freely in promiscuous intercourse with a number of fellow-boarders and

TOOK NO PAINS TOWARDS LOCAL CLEANLINESS:

in the cul-de-sac, as a consequence, there must have been admixture of seminal fluids, with stagnation and decomposition of the same. Add to this the presence of desquamating (dead) epithelium, and secretion of mucus, and we have a combination of matters from which by putrefaction or decomposition new products are evolved. These new products or a bacillus must be the generators of the disease;—if the latter, it must be an instance of spontaneous generation, an origin *de novo*—an abiogenesis.

This is no far-fetched idea; for nearly every disease with which we are acquainted that is supposed to be due to a virus, has conditions, similar to that which I have described above, associated with its early origin, viz.: intermixture of animal or vegetable particles, stagnation, and putrefaction—*i. e.*, chemical changes leading to the development of new products.

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A few illustrations will suffice to make this point clear.

MALARIAL FEVER.

Malarial districts are usually flat; the vegetation luxuriant; subsoil water high, with little or no flow. The atmosphere is very humid, with excess of carbonic acid gas. Disintegration and decomposition are facilitated by a high temperature and the presence of moisture. Leaving out of con-

sideration those exceptional instances where the malarial poison has been known to be conveyed by snow or water from a distance,—in nearly every instance malarial fevers are confined to districts having the above characteristics.

The spread of the disease is limited in altitude and horizontally to a few thousand feet at the utmost. We therefore conclude that the dangerous particles or gases are heavy, being thrown up purely by the ascensional force of the evaporation which is continually going-on from the surface of the moist soil—just in the same way as sprays of water are thrown from a fountain.

Here again, then, we have conditions similar to those which surround the origin of gonorrhœa: the putrescence or, at least, decomposition of organic matter, which is peculiarly abundant in these situations; and the stagnation of subsoil water, without flooding. Remembering these facts, surely, it is more rational to say that here, and here only, the malarial poison, whatever its nature, has its origin spontaneously, than to affirm that the situation described, affords merely a suitable place for the growth and spread of a bacillus. We remove the malaria by drainage, because in so doing we prevent stagnation of the subsoil water.

As regards

THE NATURE OF THE CONTAGION:

—whether vital or non-vital?—we must acknowledge, as in gonorrhœa, that it has a *de-novo* origin. If we ask ourselves the questions: Where did the first case of gonorrhœa arise—in the penis or vagina?—we immediately say, in the latter: and the answer is significant, as pointing to the conditions from which the disease originates. And so in malaria; the fever must originate *de novo*, in the district where it is endemic and that, within a few feet of its locus of influence.

In malaria, also, we can understand how a bacillus malarix, which is a vegetable organism, might arise from decaying vegeta-

ble matter; but it passes our mental capacity to grasp the possibility of a vegetable organism arising from putrid or decomposing animal matter.

One observer states that he has found peculiar organisms in the blood of malarial patients; another observer contradicts the statement and says these organisms are merely small particles of fibrin from the blood-plasma. Another authority states that the disease depends upon a fungus which grows in the air; another,—that the active agent is the bacillus malarix, etc. In short,—the literature relating to the nature of the malarial poison is so conflicting, we may safely conclude that, so far,

WE KNOW NOTHING ABOUT IT.

As regards its origin, however, every fact points to its spontaneous development from the conditions found existing in, and peculiar to, malarial soils.

HYDROPHOBIA.

This disease usually arises from the bite of a dog or wolf; other doubtful sources have been recorded. A rabid dog may communicate the disease to another dog, but hydrophobia, as we well know, develops spontaneously in the animal; and, therefore, it is to the dog that my attention will be directed with the view of attempting to solve the question as to its origin.

Now, there

IS ONE PECULIARITY WHICH THE DOG POSSESSES, and which is observable in no other species—during hot weather, or after exertion, it pants with its mouth open. I have observed a dog lie for hours in the heat of the day with gaping jaws and lolling tongue, panting away; and then trot along the road for hours longer, still panting. Only occasionally the tongue is retracted and the mouth closed for inducing the flow of saliva.

In that panting condition, the mouth forms a cavern or tunnel through which there is a rapid and continuous flow of organic particles, thrown off from the lungs during res-

piration. The upper jaw, more especially along the palate and teeth, is alternately dry and moist and is therefore, a favorable spot for the alternate deposition and drying of these organic exhalations.

Like sordes on the teeth of the human being, these concretions will accumulate, and, mixing with the slimy mucus and desquamated epithelium, become liable to undergo putrescent changes. It is in this decomposition that the poison originates; and

IF THE DOG BECOMES RABID,

it is solely by swallowing these secondary particles. There again, as in gonorrhœa and malaria, we have the intermixture, the stagnation, the decomposition, the heat, the moisture.

What is the virus? In this instance, it is of animal origin, and therefore, not of the nature of a bacterium, unless such are capable of arising, *de novo*, from animal products.

TYPHUS FEVER.

was held by MURCHISON, HOWARD, and others, to originate from overcrowding in houses without ventilation. It was first known as jail fever, owing to its prevalence in the filthy, badly-ventilated, and overcrowded prisons of the seventeenth and eighteenth centuries, from which it spread in all directions.

Most of us know what "a close room" is, by the horrible stench so acutely felt when entering a badly ventilated apartment from the fresh air. This only after a few hours' imprisonment of the foul atmosphere: what the condition must be if allowed to continue for weeks, months, or years,—with only an occasional current of pure air admitted to drive away or precipitate the decomposing organic matter which crowds everywhere,—can only be imagined. The organic matter is slowly oxidized; and clothing, furniture, walls, and floor, form suitable spots for its accumulation. But it does more than ac-

cumulate. The atmosphere is stagnant, and saturated with moisture; the temperature is usually high; there is admixture of putrid particles from various lungs: decomposition results, and the virulent typhus fever is evolved.

HOW DO WE PREVENT THE APPEARANCE OF TYPHUS?

There was only one way in which this disease, from which hundreds of thousands have perished, was stamped-out,—by preventing overcrowding, and restoring a free circulation of air in badly ventilated buildings. Typhus fever will soon become an extinct disease like the Oriental Plague, Black Death, and other terrible epidemics which ravaged Europe between the thirteenth and eighteenth centuries.

The bacillus theory has upset and replaced the simple and natural belief of MURCHISON. But, with overwhelming force,—be the virus *what it may*,—the facts surrounding its origin and disappearance point towards a *spontaneous generation* of the contagium out of the decomposition of organic particles.

MANY OTHER DISEASES

—we know, from an investigation of the circumstances upon which their presence depends—owe their first appearance to conditions similar to those of the diseases I have mentioned. Typhoid Fever, Cholera, and Yellow Fever have been called "*fecal diseases*," from this point of view. Diphtheria, various forms of Sore Throat, Diarrhœas, and other diseases, have all originated at different times from the putrid emanations of sewers, stagnant wells, foul drains, etc.

Sporadic cases of Typhoid Fever prove that it also can arise *de novo*. In Erysipelas, Hospital Gangrene, Contagious Ophthalmia, we have examples of diseases arising from bad ventilation, overcrowding, and accumulation of impurities. In short, leaving out of consideration, for the moment, some of the exanthemata,—*every disease which is communicable may be distinctly proved to have its origin*

IN THIS COMBINATION :

—mingling of organic particles, stagnation, putrescence (or decomposition), together with the presence of moisture, and a suitable temperature.

In the animals,—Rabies, Glanders, Distemper, Foot-and-mouth Disease, etc., are all traceable to similar conditions, though under different circumstances.

As regards Measles, Scarlet Fever, and Small-Pox,—though usually epidemic, they occur frequently in sporadic form. Our knowledge of the conditions from which they originate is very obscure; but from analogy we may safely conclude that measles (with Whooping-cough) is of vegetable origin—that is, evolved from decomposition of vegetable matter; while the scarlet fever and small-pox originate from changes in organic matter of animal origin. A micrococcus has been found in cases of scarlet fever and Vaccinia, but we are in possession of no positive proofs that these organisms—if such be their nature—have any relationship whatever to the origin or spread of the diseases.

It is interesting to note that all those diseases which are traceable to a *vegetable origin* are referable to a catarrhal group with achings and shiverings, and

DO NOT POSSESS THE VIOLENT AND SEVERE CHARACTERISTICS

of those traceable to putrid changes in matter from an *animal source*. This might almost form a basis for division of this class of diseases,—thus :

OF VEGETABLE ORIGIN :	OF ANIMAL ORIGIN :
Malaria,	Typhus fever,
Influenza,	Cholera,
Hay-fever,	Yellow fever,
Catarrh,	Hydrophobia,
Measles,	Typhoid fever,
Pertussis,	Small-pox,
(Dysentery) some forms,	Glanders,
etc.,	etc.

Before proceeding further, I would like to

advance a theory, based on the above facts, as to

THE PROBABLE CAUSE OF INFLUENZA.

The relationship of influenza, to catarrhal diseases on the one hand and to paroxysmal fevers on the other, has been noted by many competent observers. The epidemics hitherto have been wide-spread; and though the general death-rate is increased in affected districts, nevertheless the deaths from pure influenza are comparatively few. These epidemics travel westward and have been traced backward across Europe into Asia. There, for obvious reasons, we experience great difficulty in following-up their earlier history back to a beginning; but probably it lies somewhere about India, Thibet, Asia Minor, Afghanistan, etc.,—that massive stretch of country with

ALTERNATELY DRY AND WET SEASONS.

The whole distance between Calcutta and Beloochistan is almost purely alluvial, and the vegetation rank. The great mountain chains running from east to west form a barrier for the dry north-east trade winds, so that south of these mountains there exist tracts which are sheltered and where the air is partially stagnant. The ranges running in a northerly direction will also cause deflections and eddyings from the main current, and so tend to a condition similar to that found in malarial districts, with one marked exception—the excess of moisture is absent to some extent. But the temperature is high,

THE YEARLY VARIATION THE LEAST IN THE WORLD ;

while the trade-winds are laden with spores and vegetable debris lifted up and carried off from the long stretch of country which it traverses on its onward course towards the Indian ocean.

However, from the middle of May to the middle of September, the north-east trade-wind is driven back by the south-west monsoon, which rushes up from the Indian ocean, saturated with moisture. Emana-

tions from the soil will take place; and in the extensive sheltered tracts under the shadow of the mountains, out of the mixture, first stagnation and decomposition are evolved, from which then arises the influenza poison. Once it obtains a footing—by means of currents of air, contact, and intercourse of nations—it spreads far and wide with inconceivable rapidity.

It is not my object to give in detail a description of the origin of every communicable disease. I have given the above illustrations with the view of explaining clearly

MY BELIEF IN THE OLDER DOCTRINES, which existed previous to the rise of the bacillus-mania, and which upheld the spontaneous evolution of disease from unsanitary conditions. It is significant that the removal of these conditions is the only way in which we stamp-out diseases from our midst.

If the bacillus theory maintains that always and everywhere around us there are innumerable millions of malignant germs,—not in the air and soil only, but in the food we eat, the clothes we wear, aye, in our every tissue,—each of which possesses some peculiar property: one of communicating small-pox, another erysipelas, another hospital gangrene, etc.;—and that only two conditions are requisite for their appearance: a condition in our surroundings suitable for their growth, and a susceptibility of our tissues for their further propagation in our bodies:—

IF THIS BE TRUE,

why are attacks not made directly on these germs? The answer is evident—because in one instance do saproic or pathogenic organisms exist outside of putridity. In the animal tissues, *disease has already developed* before their presence can be detected; outside the body, they only exist in putrid gases, solids, or liquids.

If we could revive the unsanitary conditions of the fifteenth and sixteenth centuries, exactly as they were then, would we have a

repetition of the Oriental Plague, Black Death, Small-pox, Typhus Fever, etc.; or have some of these diseases forever died-out, while others are undergoing a gradual process of extinction? we say “yes,” to the former question, not because these diseases merely spread by filth, but because they originate therefrom: it is not a process of multiplication, it is one of spontaneous generation.

IN THIS WAY ORIGINATE THE PECULIAR VIRUS of hydrophobia, of typhus fever, of glanders, of malaria, etc., and by the complete removal of all conditions from which they emanate we can completely stamp-out all these diseases.

The Cholera poison is no longer endemic in this country, because the conditions necessary for its evolution are wanting; but, allow it to gain entrance into the air we breathe, or rather, the water we drink, and any amount of sanitation will have no control over it; so that the first and chief object of all sanitary science is, to *prevent the origin* of disease: if that be accomplished, there will be no disease to spread.

Supposing, then, that all communicable diseases depend upon a virus which originates spontaneously,—in each instance we naturally ask,

WHAT IS THE NATURE OF THIS VIRUS

by which the disease is communicable from person to person? These poisons, as I have already stated, cannot possibly be all of the same nature—some are of animal origin, some of vegetable origin: therefore, they cannot all be bacilli. It is the vain search for this animal organism in disease that has led to so many conflicting and contradictory—I may almost say, false and misleading—statements by different observers, and given rise to such confusing and often ridiculous results.

I understand there are at present not less than thirty different diseases which are supposed by bacteriologists to be due to the ad-

mittance and growth within the body of a micro-organism—a bacillus, a micrococcus, or a combination of bacterial forms. The symptoms, subjective and objective, are ascribed either to the parasite itself or to chemical products evolved from its growth.

Without going into details as regards the literature of every disease, I shall only glance at one, as an illustration of the manner bacteriologists explain away difficulties when any such beset them while establishing their favorite theory :—

ERYSIPELAS.

The efficient cause in this disease is “of course” a bacterium, which they say is a micrococcus.

This disease has various exciting causes : wounds of any kind—leech-bites, cuts, ulcers, etc., etc. It has also predisposing causes : (1st) In the patient himself; (2nd) in his surroundings. As regards the patient himself, his blood must be in an unhealthy state; and as for the surroundings, these must also be unhealthy. Some pathologists hold that the blood and tissues in health contain organisms, but that these are harmless, as healthy blood is a very unfavorable habitation for them. WATSON CHEYNE and others disbelieve the existence of these

PARASITES IN HEALTHY TISSUES ;

but all are agreed that the healthy tissues protect themselves from their inroads, unless they are introduced in great numbers. Therefore, they all maintain that—the health once lowered—these harmless organisms will assume a virulence new to them.

WATSON CHEYNE, to prove this, administered phosphorus to an animal; and after due time, micrococci were found in the blood in enormous numbers.

It would be a matter of great wonder indeed to me, if these organisms—or particles of fibrin like them—were not found in the blood in great numbers after the administration of one of the most violent blood-destroyers we possess.

Professor ROSSBACH experimented also with the vegetable ferment called papayotin; he injected into several rabbits a freshly prepared solution of this substance, taking precaution beforehand to see that neither the solution nor the blood of the rabbits contained any bacteria. Death took place in an hour or two, and the blood examined immediately after death exhibited, without exception, countless numbers of round and oval bacteria.

Dr. T. PICKERING PICK is convinced that these experiments conclusively prove

“THE RESISTING POWER OF THE HEALTHY BLOOD” against the inroads of bacteria. To my mind they convey a very different meaning.

The micrococcus of erysipelas is found, according to some, in the lymphatics and lymph-spaces of the part affected; according to others, also in the blood-vessels. They disappear in the central part when the inflammation has subsided and wherever there is a rich exudation of leucocytes.

WHERE DO THEY GO TO ?

If this were a vegetable organism, should we not be able to detect their dead forms in abundance among the tissues when the disease has disappeared?—or must we suppose that the tissues have the power of absorbing or digesting cellulose or vegetable albumin?

In Ulcerative Endocarditis, is the local inflammation first caused by the bacteria? Or is there first an inflammation caused by irritation, and is the tissue by this means rendered susceptible? How does the organism gain an entrance; and if it missed the aortic valve, what would be its subsequent history? In Relapsing Fever, where does the *Spirochæta Obermeieri* take up its abode during the interval of defervescence?

These are only a few out of thousands of questions that might be asked concerning every disease attributed to the action of micro-organisms,—without the possibility of obtaining a scientific or intelligible reply. That an active cause is ever present, is to

be taken for granted; and the abundance of these germs in connection with pathological changes in the body naturally induces us to place them in the relation of cause and effect. But this very abundance and universal prevalence inside and outside the tissues ought to warn us against drawing hasty conclusions concerning their importance.

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To conclude, we may safely infer that

THE MICRO-ORGANISM IS NOT THE EFFICIENT
CAUSE

in every disease which has been attributed to it; that when it does exist it probably arises spontaneously from putridity—having this abiogenetic origin in common with non-organized poisons; that the micro-organism when present in pathological processes—as far as we know—may be the effect and not the cause of the morbid condition; and that the same objective and subjective symptoms of disease, period of incubation, effervescence, defervescence, altered state of the blood and tissues, etc., could be ascribed with more show of truth—at least in many instances—to the action of a non-organized ferment or chemical product of decomposition, having certain nascent properties—than to inroads of an organism.

If all these contagious and infectious diseases were dependent on

ORGANISMS WHICH ARE FOREVER PRESENT WITH US, it seems to me superfluous to insist with so much persistency on the necessity of unhealthy surroundings for their propagation. *The admission of one germ is sufficient*; otherwise the theory falls to the ground. Therefore, there is a contradiction here at the very foundation of the theory. How many micrococci could possibly gain admission through the surface of a wound situated at the angle of the nose or lip,—about one-sixtieth of an inch in diameter or even smaller,—before erysipelas develops? I have never yet seen erysipelas developed in a healthy wound—nor probably has anybody else—without a special cause being apparent; but I

have seen it arise in dirty neglected sores. With these exceptions, erysipelas invariably arises at the angle of the nose, the anus, the mouth, the eye, etc.,—probably in little abrasions; and there it bears a close resemblance in its origin to other spontaneously developed diseases; for it is at these sites that naturally there are the greatest chances for the conditions above referred-to, to combine; viz.:—accumulation, mixing, and decomposition; with heat and moisture.

I MAY BE WRONG

in some of my conjectures as to the origin of certain diseases; but there is one consolation: they have been upheld by many eminent thinkers and are nothing new. Most of the arguments can stand probing, and a study of them is interesting. In fact, any argument which could have a healthy influence in controlling *the dangerous, widespread, and unfounded assertions of many modern bacteriologists*, ought to be encouraged and considered. These assertions are only misleading us as to the real nature of the efficient causes in disease. But luckily, *they will have an end*. Almost unfortunately, the stamping-out of small-pox from our midst by stringent sanitary measures will prevent our witnessing the discomfiture of vaccination; but other enthusiasts will follow in the footsteps of PASTEUR, KOCH, etc., whose “strong statements and negative results” will accomplish what common sense and sound judgment failed to do—a more or less complete overthrow of the bacillus theory.

LAWRENCE, Mass.

—
A DEFICIENCY OF EDUCATION in certain elements of materia medica, pharmacy, and chemistry it largely is, that makes the medical profession such an easy prey to pharmaceutical charlatans; and it is almost entirely due to the strictly honest work of a few manufacturing chemists and pharmacists that the medical profession has such a list of choice medicaments to enrich their armamentarium.—*N. C. Med. Journ.*

MEDICINE ABROAD;

AS REPORTED BY OUR FOREIGN STAFF.

European Editor: H. BAILLON, M.D.,

Professor in the "Faculté de Médecine de Paris"; President of the "Société Linnéenne de Paris"; formerly Professor of Hygiene at the "École Centrale des Arts et Manufactures"; etc., etc.

{ Merck's-Bulletin Office, 12 Rue Cuvier,
Paris, September 24, 1892.

THE MICROBIC MUDDLE.

In my last letter, I showed that all that the microbiologists have given us so far, is an unfathomable

MEDLEY OF MICROBES.

All is more obscure and more confused than before. The subject is more incomprehensible than ever, and may be appropriately expressed by the phrase of Cicero: "*Obscuritate rerum verba sæpe obscurantur.*"

Moreover, the observations of CUNNINGHAM suggest the question, what becomes of the unity of the Comma-bacillus itself? At Calcutta, this physician isolates and differentiates in the choleraic liquids

TEN SPECIES OF COMMA-BACILLI,

the differential characters of which are perpetuated in successive cultures. It is known that the opinion of KOCH is not accepted by Cunningham; but that the latter maintains that the causative agent of Indian Cholera is *not a unit*. That it varies according to the several epidemics, and that the different species which he has observed may be found together.

Here, with us, in the infectious, so-called "choleriform," diarrhoeas at present reigning, amongst the individuals who die—and the mortality is great—there are some in whom the typical Comma-bacillus, or a slight modification of it, is found; but there are others in whom, as NETTA has thoroughly demonstrated, it is not found at all. On the contrary, in the majority of cases, if not in all, the Bacterium Coli is met-with. There are even cases—rare it is true—in which a capsuled bacillus resembling the

Bacillus of Friedlander has been observed. What is the logical conclusion from all this, if it is not that there are cases of

REAL CHOLERA. IN PARIS,

as Professor PETER asserted long ago? It is not a Cholera of Indian origin. Be it so; but is that of any importance?

If, instead of occupying ourselves exclusively with microbiologic signs, we study the *clinical* characters; if we do not wish to lose sight of the questions of prognosis and treatment—which are, we presume, of some importance to the patients,—instead of indulging in microbiology, which invades us, but which leaves the practitioner disarmed, we must frankly avow that

A LITTLE TRUE MEDICINE

would not be misplaced.

If we do not take care, we shall be invaded by *any kind* of Cholera. The "cordons sanitaires" are a good thing; and we may be edified in seeing their official guardians sweating blood and water in order to prove that the Cholera which decimates us is not of Indian origin! But the attending physician sees patients who are algid, cyanosed, writhing with cramps, and who unhappily succumb, notwithstanding all his efforts. Ah! if these unfortunates could speak! What would it matter to them whether their microbe was Bacterium Coli, or a Comma-bacillus of the Koch type, or some variety more or less like this bacillus? A little less of science, if you please, gentlemen; and more of practice!

What has therapeutics gained, as yet, by the knowledge of these microbes? Is it not

NECESSARY, BEFORE EVERYTHING, to restore warmth to this algid subject,—care being taken that the reaction, when established, be not too violent? Is it not necessary, if possible, to relieve his atrocious pains, to arrest his uncontrollable vomiting? Well! The practitioner is no better equipped to-day, and is no more able to perform miracles than in the great preceding epidemics, at the periods during which he was still ignorant of microbiology.

Then, as

CHOLERA KILLS,

whether it be imported or autochthonous; as it presents itself—autochthonous or imported—with common characteristics concerning which the greatest practitioners agree and do not hesitate to express themselves;—it is high time to take a larger view of that branch of medicine, which no doubt will become the medicine of the future: I mean

HYGIENE.

The more hygiene will become perfected, the less will it be neglected by physicians; who now often know nothing of it and imagine that it is merely an affair of common-sense; the more the ætiology of the great epidemics becomes fundamentally understood, the less frequent and the less destructive will they become. But hygiene is that part of the medical sciences which is the most extensive, the most difficult, the most complicated; and it is that which exacts the most varied and profound knowledge, and which is least satisfied with probabilities and hypotheses.

THE REVIVAL OF THE CHOLERA GERMS of 1884 under the influence of the exceptionally great heat of this summer, and of the consequent dryness of the soil, is a mere hypothesis. It is true that the conclusions of HAUSER concerning the Spanish epidemic of 1890, and those of HUEPPE respecting the conditions of dissemination of Cholera, argue in favor of this hypothesis; but, after all, it is only a hypothesis.

I attach much importance to the fact accurately observed by PETTENKOFER: that the epidemic increases with the lowering of the level of

THE SUBSOIL WATERS.

It is also a fact that great dryness imparts to choleraic microbes a greater resistance to oxidation, which would destroy them.

But that which is most striking in the present French epidemic, is the importance of the character of

THE DRINKING-WATER

used by the inhabitants, as co-operating in the development of the epidemic. Woe to the towns which, together with the water of their rivers, drink their dejections more or less diluted. *Et nunc erudimine!* We see, in Paris and its suburbs, Cholera pursuing its course in precisely those communities in which water taken from the neighboring river is drunk.

CHOLERA TREATMENTS AND PROPHYLAXIS.

We may readily hesitate between the many and widely different

NEW TREATMENTS OF CHOLERA

which have been proposed and which, according to those who extol their merits, are excellent.

We know even from political journals, such as the *Herald*, of the treatment by application of ice along the vertebral column, to which Dr. CHAPMAN has recently called attention in Paris, and of the success of which he is—he states—thoroughly assured.

An entirely opposite line of treatment is that by means of warm baths,—adopted by Dr. GIACICH of Fiume, chief physician of the Hospital of that city; which treatment, in his opinion, is logical in the treatment of a disease in which the algid state may be very pronounced, and in which the patient, when he can describe his sensations, asks before everything to be warmed. This idea is not quite new. Dr. Giacich says he arrived at the conviction that the best of

anti-cholera treatments are those consisting in the use of medicines which

STIMULATE THE HEART-ACTION.

As stimulants,—he *firstly* gives by the stomach a two-per-cent solution of ammonia; while, *secondly*, at the same time making subcutaneous injections of sulphuric ether; and, *thirdly*, he prescribes copious alcoholic drinks. This treatment is often followed at the end of a couple of hours by the desired results. The improvement effected is considerable; inasmuch as the temperature, the pulse, and the respiration increase. The warm baths at 35° C [95 F] are reported to be very useful also in the period of convalescence. It appears that the above treatment saved more than half of the patients who were already in collapse.

At Zoubtzow, according to *La Semaine Médicale*, Dr. KOULASOVSKY obtained excellent results from another method of treatment; but, in the cases which he had, he was able to apply it from the beginning of the choleraic or choleriform symptoms which, as we know, is not always possible. He employs “anti-choleraic” wafers, the composition of which is as follows:

Powdered Camphor..... 6 centigr. [1 grain].

Tincture of Musk..... 12 drops.

Black Sulphide of Mercury.. 4 grammes [1 dram].

This mass is made into 12 wafers, one of which the patient takes every hour.

Of course, I do not speak of what may be called

THE ANCIENT METHODS

of treatment, the general character of which all practitioners know. I only say that, among all the hitherto proposed methods, the practitioner who has not yet been in the presence of Cholera—and there are many such—is likely sometimes to be much embarrassed in making a choice;—and, nevertheless, it is necessary to act promptly: *the case is urgent*.

We have here seen a considerable number of cases of *sporadic* Cholera during the last thirty years. There is a hospital in

Paris where, during the hot weather, many such cases may be seen every year, and often among the drunkards: a fact by which we have been often struck. At their entrance to the hospital, they were already algid and more or less cyanosed. We were then ignorant of the new methods of treatment which are now proposed. But we had also had experience in the Paris hospitals during three epidemics of Cholera more or less severe; and at those times it was admitted that we were in the presence of Asiatic Cholera. At present this is contested in high places,—we do not quite understand why.

Well! but, whether in the cases of Cholera *nostras*, whether in those of Indian Cholera, we recalled the saying of one of our masters, Professor TROUSSEAU, one of the greatest clinicians that France has possessed in this century, one of the most intelligent, most learned, most sagacious physicians that this country has produced. This dictum was:

“THEY MUST BE MADE WARM AT ANY COST.”

When I was on duty at the BEAUJON HOSPITAL, where a cholera patient in the algid state was brought to me, I addressed the same phrase to the hospital attendant: “He must be made warm at any cost.” And I prescribed for him a stimulant mixture containing ammonia, mentioned by Dr. Koulasovsky, in the form of the “spirit of Mindererus” (solution of the acetate). I also prescribed for him a strong dose of tea, or of rum-punch, and concerned myself but little as to the result from the point of view of drunkenness; for most Cholera patients do not suffer by becoming intoxicated.

I had another proof of this during the last epidemic in Paris. One morning, about five o'clock, in a quarter where Cholera prevailed with intensity, a resident in my house, who said her mother, aged 62, was dying, came to fetch me to see her. She was then markedly cyanosed and cold. “If in two hours,” I said to her, “you have not

warmed her, she is lost ; and the saving of her depends on you." At the end of two hours, thanks to ammoniacal and other powerful stimulants, energetic frictions, bottles of hot water to the four extremities, and an ample quantity of rum, this woman was completely warmed again ; and it was only necessary to take care that she was not warmed too much.

If in the latter respect there be some very real danger which should be guarded-against, it is none the less true that an algid patient ought to be *warmed* again at all costs. We do not delude ourselves ; we know well that at the present time there are

CASES WHICH DEFY ALL HUMAN TREATMENT, and that the wretched patients are lost in spite of anything we may do ; but we do not believe that we ought to abandon the formula of our old masters : "Make the algid patient warm again at any cost !"

We have, moreover, said : "Microbiology "has done nothing for the treatment of "Cholera." Dr. DUPOUY says, still more strongly, in the *Moniteur de l'Hygiène Publique* of a recent issue : "Since the bacteriologists have occupied themselves in "applying their ideas to therapeutics, medicine tends to become a real *bottle of ink*. " . . . The bacteriologists say, with "the pretension which characterizes them : "'We have not found in our patients the "true Comma-bacillus.' In the opinion of "one it is a bigger Bacillus, more curved. " . . . In the opinion of others, it is "the Bacterium Coli or the Bacillus of "Friedlander, or a kind of Streptococcus "pyogenès, etc. Ask, gentlemen, *the real* "therapists their opinion of the nature of "the disease, analyze the symptomatic "phenomena, and while adopting the most "efficacious prophylactic measures, cease, "forthwith, these *dubious* discussions which "lead to nothing. Enough of little beasts "like these ; it is not by the micrographic "study of microbes that we cure cholera

"patients. That serves only for diagnosis "—and even then—?"

Are we more advanced in respect to

PROPHYLAXIS,

inasmuch as the word is so often pronounced ; and as, in short, the idea is absolutely logical : "The prevention of diseases is better than curing them" ?

What avails, in fact, the "cordon sanitaire" established, at such cost, every time that we learn that there is a prospect of an epidemic? Has Russia this year been able to prevent the invasion of Cholera? The northern and eastern frontier of France are guarded ; but may not the western ports give access to the pestilence ?

The specialists themselves are unable, at present, to agree concerning the facts. It is stated that Cholera was conveyed by sea from Hamburg to England and to Havre, and this history of affiliation is generally accepted. Just now, we had this stupefying declaration made at the sitting of the ACADEMY OF MEDICINE of September 13th, by Professor BROUARDEL :

"I am not sure that the Cholera "which has been so severe at Havre "has not been derived from that of "Paris. It is said that the Cholera was "imported from Hamburg ; but *this interpretation is absolutely controverted* by a consideration of the dates. On the 1st of "August, the first case of Cholera was observed at Havre ; but it was not until the "11th that the disease was declared to have "manifested itself at Hamburg."

It is still admitted, however, that precautions may be adopted. We may

TREAT PREMONITORY DIARRHŒA ;

we *ought* to treat it ; and the proposed remedies for this diarrhœa are well known to all practitioners.

Then the *New-York Herald* tells at great length about the choleraic inoculations of the PASTEUR INSTITUTE, à propos of Mr. STANHOPE and his vaccination. Let us hope that

Mr. Stanhope will not be attacked by Cholera; but what will that prove? May you not make a journey to Hamburg without being attacked by the pestilence, although you have never submitted to the anti-choleraic vaccination? That which we see in the political journals, even, on the opinion that is held concerning

THE VALUE OF INOCULATIONS

at the PASTEUR INSTITUTE itself, is most edifying. And Roux, the right hand man of PASTEUR, received in such a manner a correspondent of *La France*, who went to interview him, that the correspondent retired, convinced that Monsieur Roux had but very slight confidence in the anti-choleraic vaccination.

Let certain doctors say that the Cholera is "in the air," and that the air is its vehicle. What have they not, in microbiology, charged to the account of the air?

AVOID CONTACT

with the dejections. and with the linen which has been used by choleraic patients. Purify the objects which they have contaminated. Conform strictly to the rules of enlightened hygiene. Beware, if you will, of using waters said to be pestilential, as those of the Seine. But, *nevertheless*, do *not believe* that there is a trustworthy formula to guarantee you safely from Cholera.

October 8, 1892.

BATHS, AND ASPHYXIA.

I am not losing sight of hygiene by summarizing the question of baths, as especially studied here, this year, by a physician at once eminently scientific and conscientious, —Dr. QUINQUAND.

Doctors often flatter themselves that they know perfectly everything concerning baths, and their influence on the health and on the action of our organs. Do not be deceived: this question is still in its infancy; and in order to solve it experimentally there are

MANY NEW NOTIONS

to be acquired.

What is the influence, on the economy, of a *very cold bath*, for example? As the respiration became difficult, as contact with the cold water produced a very strong feeling of suffocation,—mere *common-sense* reasoning, which often deceives us, tends to indicate a diminution of respiration. But this is not so: under the influence of the very cold bath the pulmonary exhalation of carbonic acid is increased, and meanwhile the consumption of oxygen is very active. At the same time, the rectal temperature is nevertheless below normal. At about 20°C [68 F], the pulmonary exhalation of carbonic acid begins to lessen.

After the cold bath, the internal temperature, instead of lessening, rises to normal and even exceeds it. Whence it may be concluded that

COLD BATHS,

even of short duration, favor the oxygenation of the blood and intensify the nutritive processes.

But there is a difference between use and abuse. Seeing the advantage, from the point of view of the nutritive function of a cold bath of short duration, one must not imagine that the same advantage is derivable from a cold bath of unduly long duration. A dog plunged into water at 0°C [32 F] will die after 20 minutes' immersion. His rectal temperature falls to 22°C [about 71½ F], whereas it was previously 38°C [about 100½ F].

The cold bath increases considerably the pulmonary ventilation; it may become almost doubled. Under the influence of

VERY HOT BATHS,

while the respiration appears impeded, the animals nevertheless exhale a greater quantity of carbonic acid than in the normal state. One may even go farther in this sense and cause the death of a dog in a very short time if it be plunged into a bath at 45° or 50°C [113–122 F]. On the contrary, the action of a very hot bath is beneficial in the case of a dog which is dying of extreme cold.

Under the influence of a very cold bath (from 2 to 5 degrees), even partial, the disappearance of the oxygen of the tissues is more rapid than in the normal state. The physiological oxidations are therefore increased. The action of moist cold can go very far, and may so diminish the exchanges that the blood of the right and left ventricles may present the same proportion of oxygen; hence the lessening of nutrition. In opposition to what has been maintained again and again,—death caused by sudden cold is not produced by asphyxia, but by excessive neuro-muscular excitability, which depends, in part, on the

SATURATION OF THE ARTERIAL BLOOD

with oxygen, whereby the nutrition of the nervous elements is modified. It is a singular fact that the hot bath increases the absorption of the oxygen of the tissues, almost in the same manner as does the cold bath (*common sense* would have indicated a contrary action). In a very hot bath, death is not caused by asphyxia, but in the same way as by extreme cold.

It is interesting to analyze the influence of cold on

GLYCÆMIA.

In proportion as the internal temperature falls, the quantity of sugar lessens in the liver; and when the thermometer does not indicate more than from 18° to 20°C [64½–68 F], no sugar is found in the liver. Inside of two hours the sugar may totally disappear.

CLAUDE BERNARD had already indicated this fact. But Quinquand demonstrated that, nevertheless, the very cold bath increases the sugar in the blood—to an extent which is not, however, sufficient to produce *glycosuria*. The consequence is that the use of cold baths ought to be forbidden to diabetics—who, in general, should assure themselves against becoming cold.

Under the influence of a very hot bath the sugar in the blood is increased.

These statements need to be meditated

upon. They are, moreover, facts of experimentation, and it is open to all the world to verify them. But, without experimentation who would have thought of them! Owing to experimentation, the respect for many things which have been up to now believed to be true has vanished.

—

A well-known medical journalist, Dr. H. LAMAU, à propos of the treatment of

ASPHYXIA,

exclaims: “Dr. LABORDE has made known “to the ACADEMY OF MEDICINE a new method “of restoring the drowned to life. It is “the first time that a practical idea issues “from the Academy.”

The fact is, the idea is essentially “practical”; for a physician, who finds himself for the first time in the presence of a person apparently drowned, and who seems incapable of being recalled to life, is evidently greatly embarrassed. Still more embarrassed is the man who, not being a physician, is, perhaps, called upon, nevertheless, to succor a person who is asphyxiated by

DROWNING.

He knows very well, perhaps, that much patience and perseverance is needful in the application of the method recommended; but what he does not really know is at what moment he ought to renounce all hope, and to consider his re-iterated efforts as, after all, useless. Laborde cited two cases in which he had the good fortune to resuscitate apparently drowned persons, *by pulling the tongue in a rhythmical manner*. Immediately several academicians—imperfectly informed, as will be seen—claimed priority in favor of Sylvester's process, a process the advantages of which Laborde had never thought of contesting.

But, in the cases which he cited, Sylvester's method—as indeed every other—had failed. Laborde has justly remarked that his method is not applicable solely to maintain and to facilitate the introduction of air into the lungs. His object is to present a

demonstration of the life-saving power which consists in energetic stimulation and

THE INDUCTION OF REFLEX RESPIRATION
and, therefore, of the function which this reflex action constitutes.

The practical proof of the truth of this demonstration has been given in the two cases cited. It is a method which is based on physiological and experimental data; and its systemized application had not before been made—not even in drawing out the tongue of the patient outside the lips and maintaining it there, as Sylvester advises, and as the majority of surgeons act after chloroform accidents.

According to Laborde, the essence of the matter is,

THE RHYTHMIC TRACTION,
in the sense and on the model of the rhythmic act of respiration. *There is a real difference* between this manner of acting and that which consists solely in facilitating and maintaining the openness and permeability of the respiratory passages. This openness and permeability are doubtless necessary; but what is their purpose if the function itself is not re-animated; and it is to this re-animation—*this vital recall* which is absolutely indispensable—that the efficacy of the new process is due.

There is, herein, a motive for popularizing this process in the two worlds;

IT CANNOT DO HARM,
and it is destined to save some lives. I may add that any one may apply it, and I should gladly teach it, on proper opportunity, to the young engineers in the CENTRAL SCHOOL OF ARTS AND MANUFACTURES; who were taught, in my time, to give the first aid—the aid most urgently needed—to the asphyxiated, to the drowned, to the poisoned, to the unfortunate workmen of factories suffering from fracture, from dislocation, from burns, from wounds, and from hæmorrhages.

The illustrious founder of this school of inquirers, the profound and practical LA-

VALLÉE, wished that these things might be taught in his school. To speak truly, they

ought to be taught in all schools; for what must be the suffering of a man who—not being a practitioner—is unable, while waiting the arrival of the anxiously expected physician, to save the life which is fast ebbing away, and which probably might often be saved if he only knew how to act!

— THERAPY OF THE DAY.

TREATMENT OF SPRAINS BY MASSAGE.

To this well-known mode of treatment, Dr. ROSENBLITH has added some new variations which he describes as very successful, in a communication to the SOCIÉTÉ MÉDICALE DU XII^e ARRONDISSEMENT DE PARIS. He does not make use of the elastic band, although he by no means underrates its usefulness.

What he particularly wants to show is that effusions of blood are very rapidly reabsorbed by massage. The injured articulation is at first immersed in very warm water, in order to dilate the superficial vessels. After this preparation of the affected region, massage should be practiced *outside* of the injured part. It is then gradually approached, and a very gentle stroking is applied to it at first. After that, more vigorous frictions are practiced.

Insensibility is thus gradually produced. When partially obtained, a more or less energetic *kneading* is practiced, according to the varying degree of sensibility experienced by the patient. To the massaged part is, finally, applied a compressive bandage, with wadding, which is wrapped in a flannel or linen band.

If the sprain occurs in the inferior limbs, the author, contrary to the ordinarily commended practice of avoiding movements for a shorter or longer period, advises the patient to walk as soon as he can do so without feeling great pain. According to the author, walking adapts the articular surface in a natural way, and actuates the venal and the

lymphatic circulations by the muscular contraction.

TREATMENT OF SEBACEOUS CYSTS BY ELECTROLYSIS.

Dr. E. LACAILLE presented a communication to the SOCIÉTÉ MÉDICALE DU XI^e ARRONDISSEMENT DE PARIS, in which he presents the following operative procedure as new in its entirety; acknowledging, however, that the first step in it is an application of TRIPIER's tubular cauterization.

The apparatus consists of a voltaic battery with a continuous current; a good galvanometer, sensitive to small intensities; a metallic plate covered with moist buckskin, 6-8 centimetres [$2\frac{1}{4}$ - $3\frac{1}{4}$ inches] in diameter, with a central orifice sufficiently large to admit the tumor; a needle isolated at some millimetres [say $\frac{1}{8}$ - $\frac{1}{4}$ inch] from its extremity, 1-2 centimetres [$\frac{1}{2}$ - $\frac{7}{8}$ inch] in length; another, non-isolated, needle; a needle-holder; and cords.

The patient being placed in a convenient position, according to the location of the cyst, the operation begins with applying the plate fixed to the positive pole over the cyst and introducing the non-isolated needle into its centre.

The start is made slowly, with a current of 8-10 milliampères for 2-3 minutes. The needle is withdrawn, and an antiseptic dressing is applied to the tumor.

If it is possible to leave-off at this stage, and simply await the shedding of the eschar, in order to evacuate the contents of the cyst by pressure, *the operation may turn out a complete success*. But there is still some cause for apprehending relapses, because the shell remains and may fill again, little by little.

To prevent relapses, the dressing is removed at the end of 2-3 days. The plate is applied, as in the first operation, and the *isolated* needle is pushed in through the small eschar. Owing to the mode of isolation, the point of the needle can reach the

periphery of the shell without again affecting the skin.

The wall of the cyst is pierced several times, the needle barely passing beyond it, and each time a current of 6-8 milliampères is applied for about 1 minute. The main object aimed-at is, to provoke, at the periphery, a slight inflammatory process for facilitating the depuration of the shell together with the surrounding tissues.

A fresh antiseptic dressing is applied, and some days are allowed to pass for the detachment of the eschar. After this time, the eschar is expelled by a slight pressure, and thereafter likewise the contents of the cyst. A sort of kneading is practiced from the periphery to the centre so as to completely detach the shell, which is removed by a forceps through the little opening left by the removal of the eschar.

A new antiseptic and slightly compressive dressing is applied; whereupon a rapid reunion of the walls takes place. The result in general is very satisfactory, and the scar is scarcely perceptible, often occupying a diameter of but 2-3 millimetres [$\frac{1}{12}$ - $\frac{1}{8}$ inch].

—There are, also, *pseudo-cysts*, for which the result turns out differently. If, for instance, a lipoma occurs, the failure of the operation is complete. But, in case of such a mistake in the diagnosis, the innocuousness of the procedure is unquestionable. Dr. L. therefore considers the application of electrolysis as vastly superior to the so highly commended cauterization by concentrated acids, a practice more or less blind, and which does not always remove the shell, so that relapses are frequent.

Electrolysis is likewise superior to the bistoury, above all on account of the small dimensions of the scar. Moreover, the operation is not painful, or but very slightly so, and the patients submit to it more readily in general than to the trenchant instrument.

PHYSIOLOGICAL ACTION OF THE COMPOUNDS OF CUPREINE, QUIN-ETHYLINE, AND QUINO-PROPYLINE.

It is known that in 1891 quinine salts were successfully prepared from the derivatives of Cupreine. Dr. LABORDE communicates to the SOCIÉTÉ DE BIOLOGIE DE PARIS that he has experimentally tested the physiological effects of Cupreine, Quin-ethyline and Quino-propyline. These substances are, in a general way, antithermic and analgesic, and especially the Quino-propyline, the most active of them. The depression in temperature caused by it is considerable, but in intense doses it produces convulsions.

Laborde sums-up his conclusions as follows :

Cupreine.—In doses of 5–10 centigrammes [say $\frac{3}{4}$ – $1\frac{1}{2}$ grains], it reduces the temperatures of guinea-pigs by 1 degree C [1.8 F] in half an hour. The other effects produced by it are exactly similar to those observed with quinine.

Quin-ethyline.—The salts tested were the hydrochlorate and the sulphate. The former is more soluble and more active. The two salts, in doses of 10 centigrammes [$1\frac{1}{2}$ grains] for guinea-pigs, and 20 centigrammes [3 grains] for rabbits, produce in half an hour a decrease in temperature of 2 degrees C [about $3\frac{1}{2}$ F]. In guinea-pigs a decrease of even 3 degrees C [5.4 F] was obtained with the hydrochlorate in one hour and a half.

Quino-propyline.—This is the most powerful of the bases tested. Its sulphate, at the same dosage as above, produced in the animals experimented upon, epileptiform convulsions with paresis of the posterior tract. The thermic effects were likewise more marked than with the preceding salts, inasmuch as it produced a decrease in temperature of 4 degrees C [7.2 F].

—If, therefore, the therapeutic properties of the salts of Cupreine, Quin-ethyline, and Quino-propyline will be found to correspond with their physiological properties, there seem to be good reasons for assuming that

they are destined to replace the quinine salts, in case these should eventually fail us—a question the importance of which for the future of therapeutics can hardly be over-estimated.

WISDOM OF THE AUTHORS.

ABSTRACTED FROM RECENT MEDICAL WORKS.

* * *

DIAGNOSIS AND PROGNOSIS OF ENDOMETRITIS DURING PREGNANCY AND LABOR.— Dr. M. Roy.

It is known that inflammation of the mucous membrane of the womb may appear during pregnancy. When it pre-exists, it may be intensified under the influence of pregnancy. It assumes similar anatomical forms within the membrane and the body of the womb.

Endometritis of the body of the pregnant womb may be slight or grave, acute or chronic. When slight, it will have very little influence on pregnancy; when grave, it may interrupt the course of pregnancy by abortion or by premature labor.

Cases of acute Endometritis are above all distinguished by *hæmorrhage* and by more or less rapid *abortion*. Cases of Chronic Endometritis will present, as symptoms in various degrees, *hydrops*, *hæmorrhages*, *the elimination of fragments of the fetal membranes* (decidua reflexa and decidua vera), uterine pains.

Women who presented these phenomena during pregnancy and who, nevertheless, have been delivered at the full term, will be liable to present *abnormal adherences of the placenta and of the membranes*. The morbid foetal membranes are often retained in the womb, either after abortion, or after delivery, spontaneously effected, or even though the foetus is born alive.

This retention of the foetal membranes may be followed—which is very important to bear in mind—by *infection*. Such retention ought to be treated by antiseptic means and, if necessary, by surgical intervention, in the form of curetting the uterine cavity.

TREATMENT OF THE ACCIDENTS FOLLOWING
INTRA-UTERINE CAUTERIZATION WITH
MEDICATED PENCILS.—Dr. M. MORNEAU.

The author has especially in view the intra-uterine cauterizations by the crayons of the *Pâte de Canquoin*, so much lauded of late years by certain operators.

Curetting is preferable and, according to the author, ought always to be adopted in the treatment of endometritis. In his opinion, medicated pencils *ought never to be employed; they are always dangerous.*

In the treatment of accidents consequent on Intra-uterine Cauterization by caustics, the doctor must always take care to assure to the woman the integrity of her genital organs. If the cervix is obstructed, if it remains easily dilatable without any tendency to relapse, catheterization should be resorted-to repeatedly.

Negative electrolysis may be tried, and, without discouragement, all the resources of palliative treatment should be exhausted.

When atresia is extensive; when the relapse is incontrollable; when the woman approaches the menopause;—the practice of frequent dilatation should be resorted-to, in order to facilitate her arrival at this epoch. But if the woman is young, there should be no hesitation in effecting speedily a radical cure.

If there is a lesion of the annexes, it will be necessary to practice—following the indications—laparotomy or hysterectomy, unless in exceptional cases, in which the constriction is recent and dilatable.

The lesions of the *cervix* pass thus to the second place. But the treatment of these latter cases—it should be well understood—is comprised in the general treatment of salpingitis.

THE TREATMENT OF RELAPSES IN SOME
INFECTIOUS DISEASES.—Dr. L. CATTIAUX.

In principle, the treatment applicable to relapse in a case of any infectious disease does not differ from the treatment of the first attack. It is necessary, therefore, to

act in presence of the second case as we should act in presence of a first infection.

But the same rule does not hold in respect to prophylactic treatment. In certain cases of recurring Erysipelas, for example, especial importance should be attached to the employment of measures of local disinfection. This remark is applicable alike in cases of Diphtheria, Cholera, etc. The practitioners ought, as a rule, to insist on the *complete disinfection* of the patient, and of the objects which surround him, not only in the interest of surrounding persons, but also in the interest of the patient himself.

It is necessary to insist on this consideration, especially in the presence of other patients, who are much more preoccupied about their own interests than about those of others. Their egotism may conduce to the general prophylaxis; but this local disinfection is not the only preservative means to be employed.

When it is a question of diseases which are rarely followed by relapses, the only preventive treatment to be adopted is a series of hygienic measures. Persons must not imagine that protection is obtained once for all time because they have been vaccinated. Physical over-fatigue must be avoided; in short, all the precautions which prudence dictates in order to avoid a first attack should be taken.

TREATMENT OF THE VESICAL WOUND CON-
SEQUENT ON THE HYPOGASTRIC IN-
CISION.—Dr. SP. DE VLACOS.

The primitive suture of the bladder possesses two great and incontestable advantages above all other methods of treatment of the hypogastric wound: it abridges notably the duration of the treatment; and it contributes to protect the patient most surely from the danger of vesico-abdominal fistula.

Whatever may be the nature of the process adopted, we are not permitted in any case to prick through the mucous membrane from

one side to the other. This practice would favor the transfiltration of the urine and the formation of new calculi around the threads which may fall into the bladder.

For the purpose of the suture, catgut is preferable because of the facility of its absorption in every case where it may be presumed that the reunion will be effected by *first intention*. In contrary cases, silk threads, which are stronger, should be preferred.

The success of the suture is subject to three principal conditions: (1) A satisfactory state of the walls of the bladder; (2) the discharge of the urine; (3) the antiseptic condition outside and inside of the bladder.

Profound changes in the coats of the bladder and principally of the mucous membrane; the disintegration of the edges of the wound; intervesical wounds consequent on the removal of deep-seated tumors,—are, as far they go, *contra-indications* to suture of the bladder.

Antiseptic injections within the bladder ought to be avoided; for they distend it and endanger the solidity of the re-union.

Provided that continuous emptiness of the bladder be insured, *hermetic closure* by the vesical suture does *not* seem to be indispensable.

For the abdominal wound the most judicious practice is the partial suture, so applied as to provide at the lower angle a place for the passage of a pre-vesical drain.

TREATMENT OF HÆMORRHAGES DUE TO RUPTURE OF THE NECK OF THE WOMB AFTER CHILDBIRTH.—Dr. A. LABORDE.

It is well known that these ruptures, frequent during childbirths may give rise to serious hæmorrhages. These occur ordinarily immediately after the expulsion of the child, and they persist after delivery, notwithstanding the complete contraction of the womb. They are characterized, among other things, by the redness and fluidity of the blood.

There is, according to the author, only

one treatment which can be successfully opposed to these hæmorrhages: that is, *plugging*.

The *cervix* must be plugged in the case in which the rupture occurs in its internal surface. *Vaginal* plugging must be resorted-to in the case in which the entire muscular layer is involved; or when the solution of continuity to which the hæmorrhage is due, is on the external surface of the cervix.

Either the hæmorrhage is slight; and then the plugging may be *incomplete*: or it is intense; and then the plugging ought to be *complete*.

Respecting the technique of plugging, it is expedient to refer to classical treatises on obstetrics. There are so many practitioners who have never had occasion to have recourse to plugging, that, if the necessity of it occurs, and if they are not specialists, they cannot be too strongly recommended to follow, step by step, the precepts given in those works. It is important, when the plugging has been accomplished, to fix the plug thoroughly.

When the hæmorrhage has rendered the woman anæmic, it will be necessary to use stimulants (hot grog, subcutaneous injections of ether, etc.). The patient's room should be warm, and care must be taken to place her on a slightly inclined plane, the head being lowest; this can be easily effected by raising slightly the foot of the bed.

There is no absolute rule respecting the length of time that the plug should be left in the vagina. Generally, the plug may be removed at the end of from 6 to 8 hours; and it is rare that at the end of this time the hæmorrhage re-appears. If, nevertheless, it should recur, the vaginal cavity must be washed out and must be then immediately plugged afresh.

When once the hæmorrhage is arrested, the first and principal danger is overcome. *But all is not finished*: there remains a wound which may be the open door of a

still greater danger: septicæmia. The danger is least when the wound is small and but of slight depth; for, in general, its lips are already re-united when the plug is removed. But if the whole thickness of the tissues is involved; or if the peritonæum has been exposed, the danger will be greater: and it will be much greater if the peritonæum has been partially detached.

The treatment will, nevertheless, be simple, and may be resumed in a single word: *antisepsy*. Mornings and evenings, vaginal injections must be resorted-to; a solution of per-manganate of potash (2:1000); corrosive sublimate and phenol being avoided because of the danger of their absorption.

If the peritonæum has become affected, the injection must be made without hesitation, and so made as to reach the peritonæum in passing by the lips of the wound. But injections must always be made with great gentleness, lest the hæmorrhage should be induced afresh.

The temperature of the patient must be carefully taken; and if it augments, the frequency of the washings must be increased.

The vagina must be dressed with iodoformed gauze, and the vulva must be protected by a suitable piece of antiseptic wadding; the whole being maintained by a T bandage.

The strength of the patient must be carefully sustained by an appropriate regimen.

DIAGNOSIS OF ESSENTIAL TACHYCARDIA.—

Dr. JANICOT.

The evolution of Tachycardia by paroxysms is observed in some patients, also the absence of lesions is noted at the post-mortem, the health being entirely re-established in the intervals of the attacks,—rapidly after an asystolic attack, and suddenly after a simple attack.

There is in these patients an absence of all disease capable of explaining the concurrence of these symptoms. All the latter

characterize the disorder as a neurosis and justify the name of *Essential Tachycardia*.

There is a common type of this paroxysmal affection, distinguished first by a simple attack and later by an asystolic one. But, in general, asystole does not occur during the first attack. The affection may be accompanied, nevertheless, by asystole from the first paroxysm. Only a small number of examples of Essential Tachycardia having been recorded up to the present time, this apparent exception may present itself oftener in subsequent observations, which will not fail to appear.

In any case, our prognosis should be expressed with reserve, although one may be tempted to take a less pessimistic view on the occasion of a first attack. The asystolic phenomena are not necessarily in proportion to the duration of the attack; prolonged paroxysms being not infrequently met-with even after several attacks.

According to the ordinary probabilities, the fit is likely to be asystolic. And, nevertheless, no complication is manifested at the moment. It is only after some weeks that it is terminated by a sudden recovery or by asystole.

When oliguria and albuminuria appear for the first time in the course of an attack and in the absence of all other symptoms observable by examination of the patient, the onset of asystole may be inferred.

Rare cases of *continuous* Essential Tachycardia have been discussed. It has been necessary to apply this name to them because it has been impossible to assign to them an explanatory cause. During evolution, they must be considered as cases of *abnormal* Essential Tachycardia. The long duration of the tachycardiac period without asystole, and the date of appearance of this last complication, make it impossible to confound these cases with those of paroxystic Essential Tachycardia, in which the simple attack is much prolonged.

On the other hand, the long duration of

the asystole, combined with the increasing gravity, give to these cases an unique physiognomy. It is evident that here are diagnostic questions of great delicacy; but these affections still need much study.

CHOICE OF TREATMENT IN CONGENITAL INGUINAL HERNIA OF WOMEN AND IN HERNIAS OF THE OVARY. — Dr. H. BOUDAILLE.

In girls, Congenital Inguinal Hernia may be treated in various ways; and the opinions of authors are so contradictory that practitioners may well feel embarrassed in making a choice.

The author thinks that Congenital Inguinal Hernia ought in early infancy to be treated by *a small suitable bandage*; afterwards,—in consequence of the violent pains which may be produced by the tumor, in consequence of its frequent irreducibility, and of the difficulties of the bandage,—the Hernia ought to be treated *by the radical cure*.

An infant may be operated-upon, in like manner, in a case of violent pains, or of indocility, or also, if the hernial sac appears to contain the annexes in part or in totality. The radical cure exposes the patients *to no danger*, if the most rigorous antisepsy be observed. The results are excellent, in consequence of the exact closure of the inguinal canal,—the physical work of woman being less onerous than is that of man.

After the operation, the woman must be made to wear a truss without a spring, for the purpose of preventing the influence of the shock of the intestinal mass on the cicatrix.

In a case of Hernia of the *Ovary*, the procedure will be different according to the state of the ruptured organ. If the ovary should be degenerated, cystic, or cancerous, it must be resected. If the ovary is healthy, or if it does not appear likely to cause accidents, it should be reduced in the abdomen. In every radical cure of this nature, it is

easy to introduce the finger into the ring by following the round ligament, and thus to verify the integrity of the ovary.

If, however, there are doubts, the ovary may be easily drawn outward by the hand for *visual* examinations, which will guide the practitioner respecting its conservation or resection.

DIAGNOSIS AND TREATMENT OF TUBERCULAR INFLAMMATION OF THE OVARY AND FALLOPIAN TUBE.—Dr. DE MASSIA.

The diagnosis of this affection is very difficult; it may be established in some cases by bearing in mind the antecedents of the patient, her age, and the absence of ordinary ætiological data of Salpingitis; of the frequent thickenings due to pelvi-peritonitis and of the general state of rapid enfeeblement.

It must be noted that it is an affection frequently observed, and, in any case, the most common of the affections of like nature of the genital organs of woman. Most frequently it is secondary; but primitive tuberculous Salpingitis exists none the less. The fallopian tube, however, is attacked oftener than is the ovary. The lesions may be unilateral; but such cases have as yet been rarely seen. This local tuberculization causes the same accidents and presents the same symptoms as most of the simple inflammatory affections of the annexes of the womb, and especially, purulent Salpingitis.

The tubercular lesions of the annexes may and ought to be removed *surgically*, for the same reason as other tuberculous parts which at first are localized should be removed. It is desirable to intervene in the case of primitive lesions as soon as the diagnosis has been established. It is also necessary to intervene in the cases of secondary tuberculosis, if the other parts in which the disease is localized are not too advanced to become modified or to rest stationary; or, indeed, if the local lesions tend to become aggravated.

Moreover, the coexistence of tubercular peritonitis is not in itself a contra-indication: the real contra-indications are drawn from the consideration of the profound alterations of other organs, from the too great enfeeblement of the subject, and from too extensive adhesions to neighboring organs.

The extirpation *by laparotomy* is most frequently difficult, in consequence of the multiplicity of adhesions, and of other resistance, which they present. The operation is also rendered dangerous by the rupture of tubercular abscesses in the peritonæum. But the

cleansing or washing of the peritonæum, followed by drainage, may indeed result in preventing this accident from having fatal consequences.

It may be affirmed that the benefit from the operation is *real*, from the local point of view, in suspending the pains and the effusions resulting from the pelvic peritonitis; also, from the general point of view, in improving the health of the patient.

Unhappily, there is always the possibility of a relapse of the tuberculous affection, and on this account there are cases in which operation must not be ventured-on.

CLINICAL PAPERS

ON LIVE TOPICS.

ABSCESS OF THE LIVER.

By W. KÖRTE, M. D.

[Read Before the BERLIN MEDICAL SOCIETY.]

Besides abscesses of metastatic origin, purulent collections in the liver are not often observed in our climates. However, in the course of the last two years, I have observed five cases of abscess of the liver, in all of which I operated.

CAUSATION.

The most frequent cause of these abscesses in Europe is cholelithiasis. In this case, the abscesses develop in several ways: sometimes biliary calculi produce suppurative inflammation due to the migration of microbes from the intestine; sometimes the abscess survenes in consequence of perforation of the gall-bladder or of the bile-ducts. In some cases abscesses of the liver are consecutive to inflammatory diseases of the intestinal canal (typhoid fever, dysentery, perityphlitis, appendicitis, etc.), in consequence of the introduction of septic agents into the vena porta. These latter abscesses are usually multiple and scarcely accessible to the surgeon.

Traumatisms of the liver (contusions, fractures of the ribs, etc.), with or without

lesion of the abdominal walls, may be followed by hepatic abscesses. In 203 traumatisms of the liver, EDLER has observed 23 abscesses. Here are, in brief, the observations of the five patients affected with abscess of the liver whom I operated upon.

1.—Cholelithiasis; abscess near the gall-bladder; large opening made; cure.

2.—Cholelithiasis; multiple abscesses consecutive to a process of angiocholitis; opening of the largest abscess; death.

3.—Hepatic abscess consecutive to perityphlitis; incision; cure.

4.—Hepatic abscess of the same origin as the last; incision; the abscess shrank up, but the patient succumbed to multiple suppurations, developed posteriorly, along the vertebral column and in the true pelvis.

5.—The cause of the abscess was unknown; incision; cure.

Abscesses of the liver, as long as they are small, do not show themselves by any objective sign; later-on, however, there is observed a tumefaction of the liver, of which the superior dulness ascends and which can be felt below the false ribs. The right hypochondrium projects forward;

the liver is sensitive to pressure, and the patient also experiences spontaneous pains. The region most painful on palpation, is that where the abscess is seated. The spontaneous pains sometimes pass up to the right shoulder. In cases of cholelithiasis, of course, it goes without saying that the biliary calculi may provoke very severe attacks of colic.

Abscesses of the liver by themselves do not produce icterus; when they are superficial, they give rise to a friction-sound appreciable to palpation.

DIAGNOSIS.

The diagnosis can be established with certainty only by making an exploratory puncture; we must not be afraid to repeat it, for, if properly made, it is without danger.

Abscesses of the liver may be confounded with pleural effusions; but the latter ascend higher up posteriorly than anteriorly, and an exploratory puncture of the posterior wall of the thorax is decisive for the diagnosis. It may happen, however, that an abscess of the liver coexists with a pleural effusion.

The distinction of a hepatic abscess from infra-diaphragmatic abscess is more difficult. Not only do both of these affections manifest themselves by the same symptoms, but they even have the same origin; it is even possible that an abscess of the liver may be accompanied with a suppuration beneath the diaphragm.

Furthermore, an abscess of the liver may be mistaken for a suppurating hydatid cyst; the presence of hook-like bodies in the fluid will suffice to establish the diagnosis.

PROGNOSIS.

From a prognostic point of view, the capital point is to know whether there exists one or several abscesses. The prognosis of multiple abscesses is very grave, particularly if not quickly interfered-with surgically. The pus soon perforates the wall of the abscess and makes its appearance in the bronchi, or in the pleural sac, or in the ab-

dominal cavity, or in the intestine, etc. The perforations into the bronchi and into the intestine are the least serious. The substance of the liver is fortunately very tolerant, from a surgical point of view; according to PONFICK, the hepatic tissue of animals is even capable of a certain regeneration. If the abscess is simple, and if there are no grave complications, the prognosis of the operation is not bad. Out of my five cases I have had three cures.

METHODS OF TREATMENT.

Abscesses of the liver have healed after a simple evacuatory puncture; but this is rare. Generally the purulent collection reforms; so it is much better to have recourse to some other method, of which there are three. The first consists in placing into the sac, after having evacuated it, a large rubber tube by means of which antiseptic irrigation, destined to prevent the reproduction of pus, is practiced. The second consists in making a large incision, in draining and plugging the cavity, with or without suture of the hepatic wound to the abdominal wound. If the abscess is situated in the upper part of the right lobe, it is necessary to resect a rib, then to open first the pleural sac—provided that the two folds of the pleura are not already adherent, and then the diaphragm.

I have operated three times according to this method, and have seen a serous effusion develop but once. On the tenth day this effusion perforated the pleura and made its appearance in the operation-wound, so that on the following morning I found a pneumo-thorax. There was a suppuration in the pleural sac and in the infra-diaphragmatic space; which obliged me to resect two ribs posteriorly to give issue to the pus. The patient was cured. The pus being evacuated, the abscess-cavity rapidly filled up with granulations. Sometimes the pus assumes a bilious coloration.

A third method, recommended by LITTLE of Shanghai, consists, after having deter-

mined the seat of the abscess with the aid of the needle, in introducing a bistoury along the needle—which serves as a conductor, then in cutting, at the same time, the abdominal wall and the substance of the liver, and finally in irrigation and plugging, or drainage, as before.

The two first methods seem to me the most preferable.

The bacteriological examination of the pus, in the patients I operated-on, once revealed the presence of the bacterium coli communis, and in the other cases, that of streptococci sometimes mixed with the bacilli of putrefaction.

In the cases of hepatic abscesses in the tropics, amœbæ have been observed in the pus, and also in the intestine.

REDUCTION OF STRANGULATED HERNIE BY MANIPULATION.

By WILLIAM H. BENNETT, F.R.C.S. ENG.

[Abstract of a lecture delivered in St. GEORGE'S HOSPITAL
MEDICAL SCHOOL.]

It is a matter of common knowledge, that many methods of treatment in themselves excellent, and when properly used of much practical utility, may under certain conditions be not only harmful but perhaps disastrous, especially if applied without discretion by any person who does not possess the knowledge or skill requisite for their safe employment. The means available for the reduction of a strangulated hernia without operation, form no exception to this rule.

DANGERS OF TAXIS.

The main possible disasters which may immediately follow upon attempts at the reduction of herniæ by taxis, may be summarized as follows:—(1) Bruising of the bowel; (2) rupture of the bowel walls, complete or incomplete; (3) laceration of the adhesions; (4) rupture of the sac; (5) hæmatocele (in cases complicated with hydrocele); (6) hæmatoma of the scrotum and surrounding parts; (7) reduction of the whole hernia with the sac (reduction *en bloc*).

BRUISING OF THE BOWEL.

Some bruising, as shown by sub-peritonæal extravasation, of large or small extent, about the herniated bowel, will be found in the majority of cases which have been submitted to taxis, unless extreme gentleness only has been used. The extent and severity will naturally depend, for the most part, upon the amount and direction of the force applied, and to a considerable degree upon the condition of the gut, which bruises more readily when greatly distended, especially in neglected cases which have been allowed to continue for a long period without treatment. It is interesting to note that bruising of the bowel, if in any way extensive, although without any apparent breach of surface on the peritonæal aspect, is almost invariably associated with bleeding into the intestinal canal, a fact conclusively demonstrated in many cases by the characteristic appearances of the first motion passed after the relief of the stricture, which nearly always contains altered blood. It may, in fact, be accepted without reserve that attempts at reduction by manipulation produce some bruising of the bowel in the great majority of cases of strangulated hernia. At the same time, it may be fairly admitted that, as a rule, unless great carelessness has been used, no permanent harm results. It is nevertheless necessary to insist on the occurrence of injury of the kind in order to give weight to the fact that attempts at reduction by manipulation are liable at times to cause injury. Taxis therefore should not be regarded, as it seems to be by some people, as a plan of treatment which, if it fails to reduce the rupture, at least can do no harm. This last remark must not be taken to imply any objection to the proper practice of this method, but merely as a warning against its use carelessly and without due regard to possible evils which may under certain conditions result.

LACERATION OF THE BOWEL.

Laceration of the bowel may, of course,

involve the whole thickness of the intestinal wall, or only one or more of its coats; the former is naturally the most serious, since it allows of the escape of fæces into the sac. The latter condition may vary in degree, from an almost imperceptible crack in the peritonæum to a laceration in the peritonæal and muscular coats inches in length, in which case the mucous coat protrudes, hernia-like, through the opening in the muscular wall. Whether the laceration is partial or complete, the treatment is identical. The edges of the wound must be brought together with Lembert sutures, care being taken that the end stitches—if the lesion is of any extent—are placed a short distance beyond the extremities of the rent. When the gut is too tense to allow of approximation of the peritonæal surfaces, it should, if necessary, be emptied. However small the crack in the peritonæum is, even if it be hardly perceptible to the eye, a single suture should be passed across it. If the condition of the patient in cases of partial laceration is so desperate that the delay entailed by the suturing process is not justifiable, the gut should be cleansed and returned into the abdomen, an unperforated drainage-tube of large calibre being left lying in the canal.

A point of great interest to which sufficient attention has not, I think, of late been paid, arises here with reference to the situation at which laceration from injury occurs in these cases. There appears to be an idea, which is traditional and supported by the teaching of the schools now, that the tear produced by injury in the gut of a strangulated hernia takes place *at the seat of stricture* in consequence of the way in which the sharp edges of the constricting tissues, as it were, cut into the distended bowel when pressure is exerted upon it.

Now I have seen several cases myself in which a rent in the gut was undoubtedly produced by taxis, and in two of these the lesion *was not at the point of constriction but on the prominent bulging and most distended*

portion of the bowel. Both of these cases were recent, and in each the rent was in the long axis of the gut. The same result followed in some experiments made by me on the cadaver, artificial strangulation in two cases of old herniæ having been produced by inflating the bowel from the abdomen and forming a stricture by ligaturing the neck of the sac together with its contents. The hernia was in one instance then violently crushed, and in the other struck sharply with a stick; in both the laceration occurred on the prominent part of the strangulated knuckle and in the long axis of the gut. On consideration, this result, so far as the situation of the injury is concerned, is, I think, precisely what should be expected in recent cases; for in such the rent begins in the peritonæum, which under pressure naturally gives way at the weakest point (that is to say, where it is most thinned and stretched by distension). A sudden blow, therefore, or prolonged hard pressure would, as a matter of course, lacerate the peritonæum in the part most stretched and thin—i.e., over the end of the distended knuckle rather than at the seat of constriction, where not only is it unstretched, but where it is actually supported by the surrounding parts.

In cases far advanced and neglected, the state of affairs is altogether different, because in them the gut at the seat of stricture is indented by the edge of the constricting tissues, partially eaten through by ulceration from within, or perhaps gangrenous and on the point of giving way. Then the weakest point is at the strictured part, and very little force may be necessary to complete the perforation which has already commenced. It is, I presume, in connection with cases of this latter kind that the traditional teaching has been fostered; for in recent cases of strangulation, it certainly does not apply.

RUPTURE OF ADHESIONS IN THE SAC.

The tearing of recent adhesions during attempts at reduction by manipulation, need not have any serious result; but free hæmor-

rhage into the sac may thus be produced so as to fill it completely with blood, although no serious lesion may be apparent. In old irreducible herniæ, in which band-like adhesions sometimes exist between the bowel and the sac-wall or between different parts of the bowel itself, no harmful results need follow if the adhesions themselves give way; but if, as may happen, an adhesion brings away some of the intestinal peritonæum with it, a partial laceration of the gut results, which is, if at all extensive, a serious condition, especially if the case has been neglected and operation long deferred.

RUPTURE OF THE SAC.

Rupture of the sac, although a recognized injury and classed as one of the modifications of the reduction *en masse*, must be a very rare sequence of taxis; as the amount of force required to tear the sac is very great and would hardly be intentionally applied. Bruising of the sac is, however, common, and I have seen a portion of its wall torn away with an omental adhesion; this, however, is not a rupture in the sense under discussion—i. e., a splitting of the sac wall from sudden or gradual pressure. In the post-mortem room I have not been able in artificially strangulated herniæ to rupture the sac without also bursting the gut. Rupture of the sac is therefore probably too rare to be other than a curiosity; indeed Sir ASTLEY COOPER, after his large experience, says that it "scarcely ever" occurs from any cause. Formerly, spontaneous rupture of the sac was also a recognized condition; but actual evidence of its existence seems wanting, or at all events is not convincing.

HÆMATOCELE.

After what I have said concerning the difficulty in causing rupture of a hernial sac, it may at first sight seem strange that the sac of a hydrocele should give way so easily. There is nothing inconsistent, however, in this; for it must be borne in mind that the sacs of hydrocele sometimes undergo pathological changes which result in softening

and thinning, so that they become weak in parts.

HÆMATOMA.

Enormous blood extravasation may be thus produced from rupture of a large vein or veins outside of the sac, and occasionally upon the application of comparatively slight force, especially in elderly people. I once had an opportunity of seeing a large blood-swelling involving the scrotum and groin, which were nearly black from discoloration, said to have followed upon nothing more violent than the manipulation necessary for the adjustment of a truss to an easily-reducible hernia in a subject nearly eighty years old.

REDUCTION "EN BLOC."

The only point to which I need call attention in regard to reduction "*en bloc*"—that is, the reduction of the sac, together with its contents, the strangulation being therefore unrelieved—is the singularly small amount of force which sometimes seems necessary to produce this accident. I have personally seen only one case, and that was not in my own practice. The hernial tumor seemed to disappear almost the moment the hand was laid upon it, and certainly before there was time for the application of any methodical violence. So much was this the fact that I cannot help feeling that there must be, in such a case, some kind of spontaneous action from above, which contributes to the reduction. Is it possible that extreme irregular spasmodic attempts at peristalsis may act in this way?

—It is only fitting that such an ominous list of casualties, which are not only possible, but actually occur in practice as the result of the use of taxis, should be followed by some indication as to when and how the reduction of an irreducible hernia by manipulation may be attempted *without risk*. The relative safety of this plan of treatment is dependent on three conditions:—(1) The manner in which the taxis is applied; (2) the

period during which the manipulation is persisted-in; and (3) the state of the hernia.

PROPER MODE OF APPLYING TAXIS.

This may appear such a purely elementary point as to render its consideration hardly justifiable outside the pages of a student's text-book. It is nevertheless true that practitioners, otherwise intelligent and trustworthy, do at times manipulate a hernia in the manner best calculated to cause injury to the contents of the sac, whilst it affords the least possible chance of effecting reduction. I do not propose to occupy space here with a description of the method by which the taxis may be applied safely and with a fair prospect of success, as it can be more usefully learnt from practical demonstration at the bedside; but some of the details of the process are so important and essential, that they require a passing notice. The details referred-to are as follows:—(a) All manipulations should be conducted only with thoroughly warm hands; (b) the neck of the hernia should be firmly supported by one hand, whilst the other manipulates the body of the tumor; (c) in using the fingers, all pressure from the finger-ends should be made by *the front of the digital pad and never by the actual tips*; (d) the pressure necessary in the manipulations should be gentle, firm, and regular, not forcible, unsteady, and spasmodic. The necessity for warm hands, for the support afforded to the neck of the hernia, and for the avoidance of the use of the actual finger-tips, is, I cannot help feeling, not so universally acknowledged as it certainly should be; for I have more than once seen attempts made at the reduction of a rupture by grasping the body of the tumor with hands almost blue with cold, the neck of the hernia being left entirely unsupported, and then with a punching and rolling movement, during which the finger-tips have been deeply pressed into the parts, the force has been gradually increased until further persistence in the attempt has been rendered impracticable by the protests

of the patient. Where injury is possible, it is from some such faulty plan as this that it is most likely to result. The cold hands excite every resistance in the way of muscular action; the want of support to the neck of the hernia makes its reduction very unlikely by allowing the gut to bulge over the margins of the constricting ring; and, beyond this, in neglected or long-standing cases, when the bowel has commenced to ulcerate from within, the pressure of the sharp edges of the stricture acts at a great advantage in further injuring and perhaps bursting the thinned and weakened intestinal walls. Finally the sharply indenting finger-tips are admirably adapted for causing an unnecessary amount of bruising and possibly laceration of the gut.

THE TIME TO BE OCCUPIED IN TAXIS.

Judging from my own experience, and from what I have seen in the practice of others, five minutes should be taken as the outside limit during which manipulation of a hernia, in cases of apparent strangulation or when impulse on coughing is absent, may be with safety persisted-in, no matter how gently it is applied. In unstrangulated cases the same time should always be considered as sufficient; for, although no actual harm need result, if the time be extended, it may very easily produce it; moreover, if success is not attained by the end of five minutes, it is very unlikely to result at all, and further attempts are practically useless.

CONDITION OF THE HERNIA.

When properly applied and with the precautions just mentioned, taxis may be used with safety (a) in all cases in which the true hernial impulse is present, provided always that there is neither any marked tenderness nor inflammation in the sac or its contents, when its employment would of course be entirely negatived; (b) in very recent cases of strangulation where the tension is not extreme. This latter is a recognized principle and is therefore worthy of respect; but I very much doubt whether it is possible,

excepting perhaps in infants, to reduce by manipulation any rupture in which the hernial impulse is not present. For myself at least, I must admit that I have never been able to return, with any reasonable application of force, a hernia in which I could detect no impulse. This impulse, it is true, may have sometimes been slight, but it was present all the same in the cases where reduction was possible, although it must be admitted that I could not always demonstrate it in the hospital patients.

A large distended hernia universally resonant should be treated with more than usual gentleness; for in such cases the bowel is far more liable to injury than in any other kind, especially if adhesions happen to exist in the sac. Hernial tumors dull on percussion, with omental or fluid contents, may be manipulated with greater freedom without much risk of damage being done, but in these, reduction is entirely out of the question in the absence of impulse; the utility therefore of persistence in the attempt at all under these circumstances, is not plain. Every case of apparently strangulated hernia must necessarily be treated upon its individual merits; but, for my own part, I am sure that, as a general principle, it is better, in herniæ which are obviously strangulated and entirely without impulse, to perform herniotomy at once, rather than make attempts at reduction by manipulation; because I have no doubt whatever that early herniotomy in fairly competent hands is infinitely less hazardous than an unwise persistence in fruitless attempts at reduction by taxis. If due regard be paid to the patient's welfare, one thing at least is certain—viz., that a strangulated hernia which has once been subjected to taxis, should be operated-upon at once, and no further manipulation used until after the tumor has been explored and the stricture freely divided.

—It must not be imagined that all risk of lacerating the bowel during attempts at its reduction, necessarily ends after the sac has

been laid open in herniotomy, or indeed in every case after the stricture has been divided; for, although to the best of my knowledge the accident has not occurred under these circumstances in my practice, I have been present at an operation in which a surgeon of experience certainly did produce a laceration in the peritonæal coat of the bowel, whilst attempting to reduce it after the division of the stricture which obviously gave rise to the strangulation. This difficulty sometimes experienced in reducing the hernia after the stricture has been cut, is undoubtedly as often as not due to the division being not sufficiently free, the little nick so commonly recommended being too slight for securing the necessary relaxation of the constricting band. I am sure, from my own observation, that harm is more often likely to arise from too slight a division of the stricture than from one which is too free. Free division of the parts about the neck of the hernia as a rule entirely obviates any chance of injury to the gut, whilst the possible anatomical dangers entailed in this free incision have been, I have no hesitation in saying, unduly exaggerated.

Although I make a practice of dividing the stricture freely, I have never had the slightest cause to regret it, and certainly have never seen any hæmorrhage which has given the least anxiety under these circumstances. The only case in which I have had any trouble whatever on account of bleeding after herniotomy, was a strangulated umbilical hernia in which alarming hæmorrhage took place into the abdominal cavity from a torn omental vein. This vessel was almost certainly burst by the force which was necessary for the return of the hernia through a ring which had been only slightly divided; had the division been altogether more free, the hernia could have been reduced without any force and the vessel would, I believe, have undoubtedly remained intact.

I now come to a point which is especially

interesting in connection with a further difficulty which occasionally arises in the reduction of a hernia, even after the stricture has been freely divided. At first sight it is a singular fact that any difficulty should occur at all under these conditions, still it is quite certain that it is sometimes met-with. For instance, in a case of inguinal hernia under my own care I was unable, after repeated division of the stricture, to reduce the intestine, although on passing the finger, as is my habit, through the canal into the abdominal cavity, I could feel nothing in any way constricting the bowel. The only noticeable thing to be felt was a loose membranous fold which, springing from the outer wall of the canal, lay quite flaccid upon the gut, and allowed my finger to pass by it with perfect ease. Whilst I was attempting to re-

turn the bowel, the end of one finger being placed on it just below this fold, I noticed that as the gut was pushed against the flaccid flap the latter seemed to grip the bowel after the manner of a sling. I therefore divided the fold, and then returned the hernia without the least trouble. Here, then, the obstacle to reduction was clearly this loose sling-like fold. The existence of membranous flaps like this and the manner in which they sometimes resist the return of the gut in operation for strangulated hernia, have not of late received the attention they merit. Bands and flaps of this kind, which are not very rare, should invariably be divided, whether they seem to compress the bowel or not; for if they do not actually prevent reduction, it will be much more easily effected after their division.

NEW REMEDIES,

AND NEW LIGHT ON OLD ONES.

ANTIPYRINE IN NOSE-BLEED.

Dr. E. G. WEST, of Boston, Mass., says that he knows of no agent so reliable in epistaxis as ANTIPYRINE. It is his custom when a case of unusual violence occurs, to saturate a pledget of cotton with a concentrated solution of ANTIPYRINE or with the dry powder, and introduce it into the nostril. It is reported that this treatment promptly stopped the bleeding in every single instance; besides, the patient was thereby spared the annoyance caused by the disagreeable tarry clots formed by the solutions of iron so commonly used for this purpose.

CHROMIC ACID IN DIPHTHERIA.

According to Dr. LESCURE, physician to the Oran Hospital, the treatment of diphtheria must meet three indications,—as follows: (1) destruction of the false membrane; (2) sterilization of the tissues in its vicinity; (3) stimulation of the general con-

dition in order to aid the patient in combating the intoxication from absorption of the toxine.

The first indication is best met, according to the author, by attouchements with a 40 % solution of CHROMIC ACID, made by means of a pencil and repeated once, twice, or—very rarely—three times in twenty-four hours. The applications are made with the utmost care,—touching only the false membranes, but scrupulously respecting the healthy tissues; they are followed by baths with a 5 % solution of saponinized coal-tar, [?—Ed.] applied by means of a large pledget of lint.

Sterilization of the adjoining mucous surfaces is effected, directly, by swabbing the throat with a pledget of lint saturated with a solution of tannic acid in glycerin (1:5), three or four times in twenty-four hours (once during the night); indirectly, by administering daily, according to the age of the child, 3 to 10 grammes [45 to 150

minims] of eucalyptus tincture (made from the fresh leaves), with mucilage and orange-peel syrup.

As for the general treatment, it has two purposes: (1) to sustain the strength of the patient so that he may be better able to struggle against the intoxication; (2) to facilitate the destruction and elimination of the toxic products already absorbed. To fill the first indication, Dr. LESCURE insists on alimentation which is both light and restorative—bouillon, soups, meat-juice, eggs, chocolate, purées, and creams; at the same time, the asthenia is combated by nuxvomica, cinchona, and alcoholics (preferably Malaga wine, Bordeaux wine, cognac, or rum).

To facilitate the elimination of the toxic products by the renal emunctory, milk, coffee, or tea, is administered; and it is in these beverages that the cognac or rum is taken.

Finally, the author strives to stimulate the combustion of the toxins by the blood, by means of augmenting the quantity of oxygen absorbed, which is done by practicing aëration as freely as possible—always ordering the windows of the room to be kept wide open from sunrise to sunset; experience has proved the good effects of the latter practice.

Dr. LESCURE has treated 54 cases of true diphtheria in the above-described manner, without a single failure, it is claimed. The patients ranged in age from seventeen months to seven years; the duration of the disease was 9 to 15 days.

The following advantages are claimed for this treatment:

1.—Rare and short intervention,—the attouchements with CHROMIC ACID being necessary but once or twice, and the tannin baths only three or four times in twenty-four hours.

2.—Absolute painlessness,—provoking, besides, no inflammatory reaction in the throat, such as follows the use of car-

bolic acid; consequently there is no hindrance to alimentation.

3.—The integrity of the mucous membrane is absolutely preserved;—in fact, the method does not permit of the ablation of the false membrane—which, considering the habitual adherence of the latter, is almost never accomplished without lesion to the mucous membrane—but lets it come away of itself, in which case, the underlying membrane being sound, there is no means of entrance for the toxine.

4.—Extreme simplicity of application; though the attouchements with CHROMIC ACID should always be made by the physician himself and not intrusted to an assistant, one or two applications in twenty-four hours suffice in nine-tenths of the cases; and this exigency it is usually easy to satisfy. As for the tannic-acid baths, they require neither skill nor science, so that anyone can apply them.

In conclusion, the author states that the foundation of this treatment is evidently the CHROMIC ACID, since it is owing to this agent that the rapid destruction of the false membrane and the immediate arrest of the production of toxins is obtained; the tannic acid and tincture of eucalyptus are necessary adjuvants, because they keep the mucous membrane of the throat in a condition absolutely unfavorable to the proliferation of the Klebs bacillus.

COCAINE CANTHARIDATE, A NEW ANTI-TUBERCULAR.

This substance, to which the formula— $(C_{17} H_{21} NO_4)_2 + C_{10} H_{12} O_4$ —has been assigned, is obtained from the double reaction between 2 parts of hydrochlorate of cocaine, 1 part of cantharidin, and 2 parts of caustic soda; it appears to be a simple mixture rather than a chemical combination. It is described (*Berl. Klin. Woch.*) as an amorphous, white, odorless powder, of a saline-pungent taste; difficultly soluble in cold but

easily so in hot water, insoluble in alcohol, ether, or benzin.

Dr. ARTHUR HENNIG, of Königsberg (Prussia), employs this new preparation in place of cantharidate of sodium in the treatment of tuberculosis and some other chronic affections (ozæna, nasal and laryngeal syphilis, etc.), according to the method of LIEBREICH (see MERCK'S BULLETIN, Vol. IV, p. 45). The COCAINE CANTHARIDATE is reported to possess over the analogous sodium salt two great advantages,—to wit: (1) the injections do not provoke irritation of the kidneys, bladder, or intestine, and (2) are much less painful than those of sodium cantharidate.

The author uses a solution (3-6:2000), of the new substance in chloroform-water in doses representing $\frac{1}{10}$ to $\frac{1}{2}$ milligramme [$\frac{1}{800}$ to $\frac{1}{120}$ grain] of cantharidin.

GOLD AND SODIUM CHLORIDE IN PROGRESSIVE GENERAL PARALYSIS.

According to Dr. BOUBILA (*Rev. Int. de Bibl. Méd.*), CHLORIDE OF GOLD AND SODIUM is a good remedy in progressive general paralysis,—augmenting the patient's chances of resistance and retarding further development during the period of decline. It is administered in doses of 2 milligrammes [$\frac{1}{30}$ grain], in a mixture, morning and evening. Every fortnight the dose is increased by 2 milligrammes until 1 centigramme [$\frac{1}{6}$ grain] is reached, which is also maintained for a fortnight. The treatment is then discontinued for a month, after which it is resumed in the same manner.

These rather large doses are reported to be borne without inconvenience in the affection under consideration.

HYDROGEN PER-OXIDE IN GASTRIC AILMENTS.

In his inaugural dissertation Dr. A. N. IAKOVLEFF, of St. Petersburg, reports on nine experiments made with HYDROGEN PER-OXIDE on eight patients, some of whom were suf-

fering from chronic gastritis, some from nervous dyspepsia, one from gastric cancer, and one from hyperacidity of the gastric juice; one was healthy. In all but two cases the patients were given a 3 % solution of HYDROGEN PER-OXIDE—4 cubic centimetres [1 fl. dr.] before each of the three meals. The patient with malignant disease and the one with hyperacidity took a 2 % solution, 4 cubic centimetres from three to six times a day. The following is a summary of the results of these experiments (*Brit. Med. Journ.*):

1.—Under the influence of HYDROGEN PER-OXIDE the general acidity of the gastric juice and the proportion of free hydrochloric acid invariably increase.

2.—The proportion of lactic acid always decreases, while in the later stages of digestion the acid disappears altogether from the gastric contents. The phenomenon is attributed to the well-known antifermentative properties of HYDROGEN PER-OXIDE.

3.—The digestive power of the gastric juice is markedly intensified.

4.—In the case of hyperacidity (as well as in another similar case in the author's private practice) the administration of the Per-oxide was followed by a distinct aggravation of all gastric symptoms; while in all others, including that of cancer, marked improvement was observed—the appetite improved, the epigastric pain ceased, eructations and vomiting decreased or entirely disappeared, and the bowels became more regular.

ICHTHYOL AS AN ANTIPHLOGISTIC.

Clinical experiences in the treatment of *gynæcological diseases* with ICHTHYOL are rapidly accumulating. Dr. NIEMIROWSKY (*Prov. Med. Journ.*) has obtained excellent results with it in the course of the last year, and found it especially useful in chronic para- and perimetritis, as well as in oöphoritis. In all cases a 10 % solution in glycerin was employed, a plug saturated with it

being introduced into the vagina and allowed to remain twenty-four hours. On removal two warm washings were performed daily, and the plug again introduced after a day or two. Besides the absorptive character of the remedy, ICHTHYOL is also said to be valuable on account of its anæsthetic action; so that, in the experience of the author, it was never necessary to administer narcotics during ICHTHYOL treatment, as the patient generally admitted an alleviation of the pain after the introduction of one or two plugs. Unpleasant by-effects were not observed, with the exception of slight pruritus and inflammation of the skin of the genital organs.

—The success which has attended the therapeutical employment of ICHTHYOL in gynæcology in virtue of its anæsthetic and vascular contractive properties and absorbent action, has also induced Dr. SCHARFF (*Ibid.*) to experiment with it in *inflammation of the prostata*. A small syringeful of a 10 % aqueous solution was injected per anum, three or four times daily, and always with the most satisfactory results. The inflamed and swollen glands that in many cases had rendered the rectum impassable, returned completely to their normal size, and entire absence of pain was reported. In forty cases in which this treatment was adopted, not one instance occurred in which an abscess was formed—which is also a strong recommendation for ICHTHYOL.

IODIDE OF BISMUTH AND POTASSIUM IN OTORRHŒA.

In the treatment of otorrhœa Dr. GARNAULT (*Sem. Méd.*) uses with advantage, it is claimed, a tepid 1 % solution of the double IODIDE OF BISMUTH AND POTASSIUM, to which is added a little glycerin (if too painful, it is diluted with one-fourth part of water), and instills 5 or 6 drops into the ear after previous syringing.

According to the author, IODIDE OF BISMUTH AND POTASSIUM is superior, as an antiseptic, to boric acid, resorcin, or silver nitrate.

IODIDES IN PULMONARY PHTHISIS.

Dr. RENZI, professor of clinical medicine at the University of Naples, anew recommends the treatment of pulmonary tuberculosis by means of the iodides. He uses "iodized serum," of which the following is the formula:

Potassium Iodide.....	3 parts.
Iodine.....	1 part.
Sodium Chloride.....	6 parts.
Distilled Water.....	1000 parts.

Three or four tablespoonfuls 3 to 6 times daily, in a cup of milk.

The effects of this medication, according to the author, are superior to those of any other method of treating phthisis; they manifest themselves first by a considerable augmentation of the appetite and of diuresis, as well as by the diminution and disappearance of the fever; later-on, there are observed an increase in bodily weight and a diminution of the number of bacilli in the sputa.

The "iodized serum" is said to be well tolerated, as a rule; the symptoms of iodism often observed at the beginning disappear soon, even if the doses are progressively increased.

Besides the iodide treatment, Prof. RENZI also uses, in cases of phthisis, salicylic acid (in enemata) for the purpose of combating the fever, and bismuth salicylate against the diarrhœa.

IPECAC ANEW LAUDED IN DYSENTERY.

Dr. A. H. HART, acting physician to the FRENCH HOSPITAL, Suez, reports the following interesting case (*The Lancet*), illustrating the magical effect of large doses of IPECAC in the treatment of dysentery.

M. S—, a native of Austria, has resided for the last nine years at Ismailia. This town is notorious for malarial fever, and for three months in each year—July, August and September—she has suffered from intermittent fever. The paroxysm of fever came on about 11 A. M., terminating about 3

P. M. Towards the latter part of July of the present year, she had a very severe attack of fever accompanied by acute dysentery. The diarrhœa was very troublesome, the bowels being moved as many as fifteen times in the course of the day, and the action being accompanied by much tenesmus. The character of the stools was typical of dysentery—at first yellow, then mucoid and slimy, with a very offensive odor. At the commencement of the attack, retention of urine occurred for three days, and there have been subsequent attacks of dysuria. Four days after the commencement of the fever severe pain was felt in the right side, causing difficulty of breathing and accompanied by vomiting of a bilious character. On the morning of Aug. 11th, the patient was admitted to the hospital, presenting the following condition: State of great prostration, with intense irritability and restlessness; temperature, 38°C [100.4°F]; abdominal tympanites and tenderness; hepatic fulness and intense sensitiveness, dysuria, and diarrhœa. The stools were of the usual slimy dysenteric character, with a very offensive odor.

The patient was placed in a cool ward by herself and absolute quiet enjoined. Twenty minims of tincture of opium were at once administered in a little water, followed in half an hour by half a dram of powdered IPECAC. Turpentine stupes were applied to the abdomen, and the opium enema of the B. P. given. In the afternoon, half a gramme [$7\frac{1}{2}$ grains] of quinine was given in a cachet. The treatment was so immediately successful in stopping diarrhœa and easing pain, that at night fifteen minims of laudanum, followed by a gramme [15 grains] of IPECAC, were again given, with another opium enema. For the first day the patient was allowed nothing but hot milk to drink.

Aug. 12th: Patient has had four stools in the twenty-four hours, the temperature being 38.6°C . The IPECAC caused a good deal of

vomiting, but almost stopped diarrhœa, greatly easing the pain in the side. The following powder was prescribed: Two grains of bismuth salicylate, one grain of quinine sulphate, one grain of naphthol, one-third of a grain of powdered opium. This powder was divided into four cachets, one being taken every three hours. The opium enemata and turpentine stupes were continued. Milk and soda-water, or barley-water, was all that was allowed for diet.—13th: Temperature 38°C . The patient was very comfortable; slept well. Bowels moved three times in twenty-four hours. No abdominal pain. Milk, bread and bouillon allowed. Medicine repeated.—14th: Temperature the same. One motion in twenty-four hours.—15th: Temperature 37.8°C [100°F], the patient passing natural stools. Gets up during afternoon and takes more solid food. A gramme [15 grains] of quinine, and carbonate of ammonium instead of the bismuth preparation ordered.—16th: Temperature 38°C . The patient progressed satisfactorily.—17th: A slight return of diarrhœa, which was effectually stopped by ten grains of Dover's powder.—18th: All unfavorable signs having passed away, at her own request the patient left for her native home in Austria.

According to the author, the specific action of IPECAC in dysentery is due to its dual *modus operandi* on the intestines—as a muscular sedative, and a secretory stimulant. As is known, the most characteristic symptom of dysentery is tenesmus: there is such exaggerated peristaltic contraction of the rectum and lower portion of the colon, that the patient goes to stool from thirty to two hundred times in the course of the twenty-four hours, or sits there for half an hour at a time, straining violently, but passing little or nothing. The patient is under the delusion that he will pass something that will do him good. The fault does not lie in the irritant to be expelled, but in the irritability of the intestinal muscles. The great diffi-

culty we have to deal-with then, in dysentery, is exalted peristalsis. IPECAC meets the difficulty by acting as an intestinal muscular sedative. A large dose of IPECAC stops tenesmus quite suddenly and smaller subsequent doses prevent its return. With a return of the muscular coat to its normal condition the other coats lose their irritability and the accompanying inflammation coincidentally subsides. The mucous membrane is then in a suitable condition for the second action of IPECAC to come into play—namely, secretory stimulation. We have now to deal with an enteritis, and here, it is held, IPECAC acts in the same way as in bronchitis. Stimulation of the mucous membrane with secretion of mucus is effected by direct action on the peripheral endings of the gland nerves or minute ganglia. IPECAC has the same beneficial effect in dysentery therefore as it has in bronchitis. The action of IPECAC on the liver is that of a powerful stimulant. In dysentery the hepatic functions are in abeyance and bile is absent from the stools. IPECAC directly stimulates the hepatic cells, so that very shortly after its exhibition the colorless slimy stools become feculent.

IPECAC is therefore considered a perfect remedy for dysentery; in those cases where it fails when success ought apparently to attend its administration, the fault probably is to be found (we continue quoting) in the diet. For three hours after the first dose of IPECAC only a little ice should be sucked, and after that a little iced soda-water and milk. Beef-tea or bread, or very light foods, are fatal to the successful administration of IPECAC; and to this cause a great many of the failures of IPECAC are doubtless to be attributed. On the second day, the drug can be reduced in quantity and supplemented by salicylate of bismuth, quinine, naphthol and opium. Milk should still form the staple article of diet. Later-on, farinaceous food and soups may be carefully given, but

a return to solid meat should be deferred as long as possible.

There are cases where IPECAC fails when administered by the mouth which may be very successfully treated by IPECAC and opium enemata.

POTASSIUM CHLORATE IN LEPROSY.

Dr. J. CARREAU, of Pointe-à-Pitre, reports (*Sem. Méd.*) that he has obtained, in two cases of leprosy, a remarkable improvement from the internal use of POTASSIUM CHLORATE.

This treatment was suggested to the author by reading the statement, made by Dr. BRASSAC in an article on leprosy, that in a leprous patient who had been bitten by a rattle-snake and died twenty-four hours afterward, the leprous tissues very rapidly collapsed after receiving the bite. Now, as the intoxication by this serpent's venom provokes symptoms of very intense met-hæmoglobinæmia (black, fluid blood; icterus, hæmorrhages, convulsions or somnolence, profound anxiety), it might be supposed, the author argued, that it was also by its met-hæmoglobinizing properties that this venom acted on the leprous tubercles in the cases related by Dr. BRASSAC; he therefore felt justified in trying a treatment of leprosy by means of one of the medicaments known to produce met-hæmoglobin, fixing his choice upon POTASSIUM CHLORATE.

The first patient in which this treatment was applied was a man of thirty-nine, affected since five years with tuberculous leprosy, against which all the known means (Indian pennywort, chaulmoogra oil, etc.) had been tried in vain. The leprous nodules had invaded the whole face, as well as the neck, the chest, the extremities, and the soft and hard palates. After assuring himself that the urine contained no albumin, the author administered 20 grammes [5 drs.] of POTASSIUM CHLORATE dissolved in 250 grammes [about 8 fl. oz.] of water, and the next day 10 grammes [$2\frac{1}{2}$ drs.] more of the same medicament. As an immediate result, the

patient was seized with diarrhœa; but from the day following the one on which the second dose of POTASSIUM CHLORATE was given, the patient experienced a very decided improvement in his leprosy: the movements of the face, of the eyelids, and of the lips had become more easy, and the swelling of the right foot had subsided; and the tubercles had become less prominent and softer. As the patient, delighted with the improvement obtained, asked for another dose of the medicament, 15 grammes [4 drs.] more were given. This third dose was followed by quite formidable symptoms of intoxication,—fever, frequent bilious vomiting, stools of the same nature, enlargement of the liver and of the spleen, great prostration with thready pulse, syncope, etc. At the same time that these alarming phenomena—which, fortunately, soon vanished under the influence of stimulants and an invigorating regimen, there was observed almost complete disappearance of the leprosy tubercles. The face had become nearly even; the neck and chest, traversed five days before by tuberculous trails, were perfectly smooth; the hands had resumed their usual size, and the little finger of the left hand, which previously had the appearance of a large sausage, now was nearly of normal dimensions, and, besides, had partly recovered its sensibility; the swelling of the feet had subsided like that of the hands, and the skin covering them was in plaits. This remarkable improvement persisted up to the date of this report, several months later, in spite of the alcoholic excesses in which the patient indulged.

The second case in which Dr. CARREAU applied the treatment with POTASSIUM CHLORATE was that of a colored woman affected with maculo-tuberculous leprosy. After having taken 30 grammes [1 oz.] of the medicament in three doses, she presented the same symptoms of intoxication as were observed in the first case, these phenomena proceeding on a par with the subsidence and de-

coloration of the leprosy tubercles, and with the reduction of the swelling of the hands and feet, of which the skin had wrinkled.

—Thus, in the above-described cases of leprosy, a prompt and profound improvement has been obtained by the met-hæmoglobinization of the blood by means of POTASSIUM CHLORATE; and, although this treatment is not exempt from danger, it appears to be worthy of a trial in a disease so rebellious to all therapeutical resources as leprosy. Furthermore, aside from the practical interest it may present, this treatment offers a still greater scientific interest; for it foresees in the met-hæmoglobinæmia provoked artificially by medicaments, a means of combating not only the bacilli of leprosy, but also microbic invasions in general.

SALOL IN INFANTILE DIARRHŒA.

According to Dr. E. MENSI (*Gaz. Degli Osp.*), SALOL is *the* intestinal antiseptic. With it he has treated some twenty-seven cases of infantile diarrhœa in children ranging in age from one to eleven years; it was well borne in all but one who was taking as much as 3 grammes [45 grains] daily, with the effect of producing somnolence, which, however, promptly disappeared upon discontinuing the medicament.

As a result of the treatment, cessation of the eructations and of the nausea, and detergence of the tongue took place in a very short time; the alvine discharges lost their fœtid odor, steadily diminished in frequency, and soon resumed their normal character; the colics were promptly attenuated, and the patients re-assumed their usual lively humor.

The dose employed was 25 to 50 centigrammes [$3\frac{3}{4}$ to $7\frac{1}{2}$ grains] daily in children under 1 year, and 1 to 2 grammes [15 to 30 grains] in those over that age.

From these observations the author draws the following conclusions:—

1.—SALOL is possessed of great efficacy in

the intestinal antiseptis of children affected with diarrhœa, either acute or chronic.

2.—It speedily causes the intestinal discharges to disappear, attenuates the colics and the tenesmus, restores the normal character of the fæces, and improves the general condition of the patients.

3.—It is well tolerated in daily doses of 25 or 30 centigrammes to 2 grammes [$3\frac{3}{4}$ to 30 grains]—according to the age of the child and the gravity of the affections; it does not irritate the gastric mucous membrane nor produce any toxic phenomena.

TURPENTINE IN PHOSPHORUS-POISONING.

Dr. O. BUSH reports (*Vratch*) on a series of experiments upon dogs, cats, rabbits, and fowls, conducted with a view to ascertaining the action of TURPENTINE in cases of poisoning by phosphorus. The latter was administered per os or hypodermically, in quantities in excess of fatal doses, and a TURPENTINE emulsion subsequently given. As a result, it was observed that the action of the phosphorus was distinctly impeded, to a certain extent; wherefore the author recommends the use of TURPENTINE as an antidote in cases of poisoning from that substance. It is advised, at the same time, not to neglect the use of emetics and of the stomach-pump. It is suggested that the beneficial action of the TURPENTINE may be due to the formation of an analogous compound to that obtained by KOEHLER, named terebintho-phosphoric acid, which, though poisonous, is said to be much less energetic in its action than phosphorus itself.

TASI AS A GALACTAGOGUE.

According to Drs. E. DEL ARCA and J. SICARDI, of Buenos-Ayres, TASI (*Morrenia brachystephana*)—an *Asclepiadea* indigenous to the Argentine Republic, where it grows in abundance—is an excellent remedy in cases of diminished or suppressed lacteal secretion. The leaves or the root (fresh or dry) of this plant are employed in

infusion, and the fruit in decoction.—30 grammes [$1\frac{1}{2}$ oz.] of TASI root are infused in 200 grammes [$6\frac{3}{4}$ fl. oz.] of water, and administered in tablespoonful doses in the course of twenty-four hours; or a decoction of 40 grammes [10 drs.] of the fruit in 200 grammes of water may be given in the same way. These preparations are flat in taste, and have a bitter and rather disagreeable after-taste.

Of fifteen women—three primiparæ and the others multiparæ—affected with agalactia and treated with TASI, Dr. DEL ARCO claims (*Sem. Méd.*) to have obtained a favorable result in eleven, a doubtful result in two, and a negative result in two. The more or less remoteness of the period of treatment from the confinement did not appear to exert any influence on the more or less rapid return of the lacteal secretion.

ZINC SULPHATE IN TRAUMATIC TETANUS.

Dr. J. S. HUNT, of Queensland, publishes a very interesting case of traumatic tetanus in which ZINC SULPHATE was used with a successful result (*Australas. Med. Gaz.*). The trouble arose after amputation of a foot for compound comminuted fracture of the fibula, which, owing to the long time which elapsed since the accident, had been followed by a condition of putrescence at the seat of injury. On the fifth day after the accident the patient complained that his teeth were tender,—which he ascribed to his clenching them too tightly during sleep. Two days afterward there appeared a marked rigidity of the muscles of the lower jaw, soon followed by very severe general tetanus.

Having had a favorable experience with zinc salts in chorea—believed to be due to some morbid condition in the basilar ganglia, and thinking that tetanus may possibly be caused by a paralysis of some motor-inhibitory mechanism in the same ganglia, the author conceived the idea that perhaps the treatment with preparations of zinc

might also be efficacious in the affection in question. Accordingly, ZINC SULPHATE was administered in progressively increasing doses until as much as 2 scruples [2.6 grammes] were being taken every 6 hours. No vomiting or other inconvenience resulted,—the only unusual thing noticed being some anæmia.

Opium was also given and quite freely; and to the stump in which the trouble originated antiseptic dressings and irrigation

were rigorously applied. Under this treatment the patient recovered; but still it is a question whether the favorable result was due to the ZINC SULPHATE alone, or to the combination of the measures adopted in the treatment.

A very peculiar point in the case is, that the zinc salt, even in the enormous doses in which it was administered, did not produce the nausea and vomiting it usually does in other conditions.

PRACTICAL HINTS

ON METHODS IN THERAPY, PHARMACY, ETC.

ACTION OF SOME MEDICAMENTS ON THE BRAIN.

According to Dr. KRÆPELIN (*Rif. Med.*), a given drug has a different action on sensory and motor functions. For instance, it was determined that *alcohol* in small doses impairs the sensory functions and excites the motor ones; while in large doses it first aids the motor processes, then abolishes them.

Par-aldehyd, according to the report, impairs the sensory functions, whilst it first aids the motor processes and then rapidly paralyzes them.

Chloral hydrate impairs both sensory and motor functions.

Ether speedily paralyzes sensory processes and excites motor ones; large doses increase the sensory paralysis and eventually abolish motion.

Chloroform was found to have a similar but more prompt action.

Amyl nitrite causes excitement of the motor functions, and also slight paresis of the sensory processes.

Tea largely facilitates the sensory processes for a time, then depresses them; it has but little effect on the motor functions.

Morphine at first causes enormous excitation, subsequently rapid depression of the sensory functions; also marked and prolonged paralysis of the motor functions.

ANGINA PECTORIS.

As is known, angina pectoris is generally considered to be due to sclerosis of the coronary arteries of the heart,—the severe and prolonged paroxysms of angina being explained by the presence of a thrombus or embolus in these arteries. In a recent paper on the treatment of this disease, read before the MEDICAL ASSOCIATION OF ST. PETERSBURG, Dr. KERNIG (*St. Petersb. Med. Woch.*) describes two cases in which the post-mortem examination confirmed this opinion of the ætiology of the affection. In both cases sudden death had followed a severe paroxysm, and a well-defined softening of the cardiac muscle, with incipient demarcation of the focus of disease, was present.

The above view of the causation of the paroxysms is supported by a clinical observation which the author made,—to wit, that in some cases, in a few days after the paroxysm, symptoms of pericarditis were observed, which might be interpreted as proof that the centre of softening had reached the pericardium. Consistently with this belief, he enjoins absolute rest for about two weeks after an attack, in order to favor the cicatrization of the softening centre in the cardiac muscle. This absolute rest must be maintained, it is urged, even when the patient feels quite well after the paroxysm and has a good pulse: for he is, nevertheless, always

in great danger immediately after the attack ; but with complete rest and prudent avoidance of all unnecessary exertion of the heart, he may escape this danger, which will be passed when the softened cardiac muscle has cicatrized.

Several extremely grave cases were treated according to this rule, without a single relapse,—though one of the patients had remained for four years under observation.

Patients, it is further stated, must be particularly careful at such times, when, from previous experience, a paroxysm may be expected. Walking in heavy clothes must be absolutely avoided. With the first symptom of an approaching attack, the sufferer must rest immediately, and if possible assume the recumbent position. When the attack occurs in the street, the patient must immediately be removed to his home and should certainly not attempt to continue walking. On the other hand, Dr. K. fully appreciates the value of regular and rational exercise when no fresh attack is imminent and sufficient rest has been taken after the last paroxysm.

BORIC ACID ;—PREPARATION OF CONCENTRATED SOLUTIONS.

A saturated aqueous solution of boric acid, prepared at ordinary temperatures, contains, as is known, approximately 4 per cent of the acid. To prepare more concentrated solutions, SCHOLTZ and MANSIER (*Rep. de Pharm.*) recommend the addition to the mixture of boric acid and water, before boiling, of 1¼ grammes [about 1 scruple] of calcined magnesia for every 10 grammes or fraction thereof beyond the normal quantity of 40 grammes [about 10 drs.] per litre (1000 grammes=34 fl. oz.) of water. The calcined magnesia may be replaced by the *carbonate of magnesium*, according to PLOUX, who suggests the preparation of a stable solution, containing

100 grammes [about 25 drs.] of boric acid in a litre of solution,—as follows :

Boric Acid.....	100 parts.
Magnesium Carbonate.....	11 parts.
Water.....	1000 parts.

Even a 20 % solution of boric acid can be prepared,—thus :

Boric Acid.....	200 parts.
Magnesium Carbonate.....	35 parts.
Water.....	1000 parts.

DIPHTHERIA TREATMENTS.

According to Dr. N. F. FILATOW, professor of pædiatrics at the UNIVERSITY OF MOSCOW, the following measures constitute the treatment of diphtheria with which he has succeeded best :—Restorative and tonic alimentation ; purgatives to combat the constipation ; regard for cleanliness of the mouth ; thrice daily bathing the diphtheritic foci, first with undiluted tincture of iodine, then, when the pseudo-membranes begin to come away—leaving ulcerations of the mucous membrane behind them (during which period the applications of tincture of iodine would be too painful)—with the following solution :—

Corrosive Sublimate.....	1 part.
Tartaric Acid.....	5 parts.
Distilled Water.....	1000 parts.

Externally!

As a tonic, the author prescribes the following mixture, which also exerts a very useful local antiseptic and astringent action :—

Solution Iron Chloride.....	1 part.
Distilled Water.....	90 parts.
Syrup..	10 parts.

Hourly a tea- to a dessertspoonful, according to the age of the patient.

At the same time the professor does not neglect insuring intestinal antisepsis (for the purpose of preventing the absorption of the toxines by the intestine), by means of the following mixture :—

Magnesium Sulphite.....	} of each, 2 parts.
Sulphurous Acid.....	
Distilled Water.....	100 parts.
Syrup.....	10 parts.

Hourly a tea- to a dessertspoonful, according to the age of the child.

This mixture is said to be not very disagreeable in taste, and to be well borne by the stomach.

Sometimes Dr. FILATOW employs, for the intestinal antiseptis, chlorate of potassium and hydrochloric acid, administered separately but one immediately after the other, according to HEYDER'S method. He prescribes :—

- (1) Potassium Chlorate..... 2 parts.
Distilled Water.....100 parts.
Syrup..... 10 parts.

and :—

- (2) Dilute Hydrochloric Acid..... 2 parts.
Distilled Water100 parts.
Raspberry Syrup..... 20 parts.

Hourly a tea to a dessertspoonful (according to the age of the child), first of mixture No. 1, then, immediately after, of No. 2.

The antiseptic action of this medication is ascribed to the production of chlorine in the intestine upon contact of the two mixtures.

Finally, in cases of diphtheria complicated with croup—and only in those cases—the author has recourse simultaneously to the external and internal use of mercury, according to the method of Prof. RAUCHFUSS. In these conditions he prescribes the following :—

- (1) Frictions every 2 hours with $\frac{1}{2}$ to 1 gramme [$7\frac{1}{2}$ to 15 grains] of strong mercurial ointment (50 %);

and :—

- (2) Van Swieten's Solution..... 1-2 parts.
Distilled Water 10 parts.
Teaspoonful every 2 hours.

EPISTAXIS OF PHARYNGEAL ORIGIN.

Although 9 times out of 10 hæmorrhage from the nose has its origin in the anterior portion of the nasal septum, still it may come from the *pharynx* and even when the latter is healthy, says Dr. MOUNIER (*France Méd.*); and the flow of blood from one or both nostrils is no proof that its source is in the nasal fossæ. Although anterior tamponade when well made generally arrests nasal hæmorrhages, it is well to remember that there are cases where complete plug-

ging (anterior and posterior) is powerless and it is necessary to resort to the application of hæmostatic solutions. The author recommends antipyrine, in 1:5 or 1:10 aqueous solution, as one of the best hæmostatics,—being better supported than even dilute solutions of per-chloride of iron, and giving rise to no disturbance whatever.

INTESTINAL DISINFECTION IN ACUTE INSANITY.

Dr. JOHN MACPHERSON, of the Stirling District Asylum for the Insane, remarks, in a paper read at the recent annual meeting of the BRITISH MEDICAL ASSOCIATION, that probably every asylum physician regrets the necessity for the employment of narcotic and hypnotic drugs in medical practice among the insane. After a night's sleep obtained by a sedative narcotic, he has found that the excited patient was noisier and more troublesome, and the melancholic more disturbed in mind. The reaction thus produced must be overcome by the continuous administration of the drug, usually in increasing doses. It is known that constipation tends to aggravate the symptoms of acute mental disease, and a temporary improvement follows the emptying of a loaded intestine. In every acute case of insanity, a marked disorder of the gastro-intestinal tract is present; though secondary, it must exercise an irritating effect upon the general bodily functions, and lead to the absorption of poisonous bodies—the products of putrefactive changes in the gastro-intestinal tract. Calomel and other forms of mercury, in purgative or laxative doses, will induce sleep; some other purgatives have a soporific influence, and, as Dr. LAUDER BRUNTON had pointed out, *nux vomica* has a mild hypnotic influence.

It is known, the author continues, that certain forms of gastric and hepatic derangement are accompanied by mental depression; there is a form of melancholia which may even be described as visceral; and in

all cases of melancholia there is a concomitant intestinal derangement. The disordered state of the digestive system, permitting as it does of the formation of poisonous ptomaines, is a source of further complication and aggravation of acute mental disorders.

In a healthy stomach, the antiseptic action of the gastric juice insures the destruction of pathogenic organisms.

Dr. M. has been led to the following line of treatment arising out of these considerations:—In the first place, on the admission of a suitable case, the stomach is washed out, and a dose of calomel varying from 2 grains to 4 grains [0.12–0.25 gm.] is given. For the first week, the stomach is washed out every day or two, and the bowels are regulated with compound rhubarb powder, or cascara and liquorice. On the morning of the second day, the administration of naphthalene is commenced; the dose given is 10 grains [0.6 gm.] three times a day, between meals, gradually increased until as much as 40 or 80 grains [2.6–5.2 gms.] is given in the course of twenty-four hours. He has found naphthalene to exert a far stronger influence than beta-naphthol.

With the view of preventing its putrefactive fermentation, nitrogenous food also is, as far as possible, eliminated from the diet.

Dr. M. has not noticed any ill effects from the naphthalene, though in one case 120 grains [8 gms.] were given in twelve hours; appetite was unaffected, and the body-weight increased steadily in most of the cases. The removal of anæmia was a very marked effect of the treatment. The pigmentation and dryness of the skin observed in melancholia were favorably influenced. In a few cases a single dose, but in the majority of cases the continuous administration of the drug for two or three days, led to restoration of the sleep habit. When fully under the influence of naphthalene, the patient slept normally and naturally for seven or eight hours, and awoke refreshed, and without the restlessness and other evil effects observed

after narcotics. The sleep-inducing powers of naphthalene are, therefore, probably indirect, and due to the suppression of causes which prevent sleep. Its action on the mental symptoms also is probably indirect. It cuts short some of the attacks, chiefly milder examples of melancholia. In the majority of cases, it did not shorten the period of mental disturbance, but it caused the rapid disappearance of mental distress and motor restlessness of melancholia, the suicidal became quieter, and the tendency to impulsive acts was diminished in all the cases. The author is not yet prepared to make any statement as to acute mania, though in one case of acute mania in an adolescent, it induced normal sleep. In some cases in which the drug was used, it failed to produce any effect; but this was probably due to the doses given not being large enough. The influence of the drug, therefore, is to modify and abate the distressing and more violent symptoms, and to hasten a condition resembling commencing convalescence.

IODINE DANGEROUS IN INTRA-UTERINE INJECTIONS.

Dr. GÖRDES relates a case (*Centralbl. f. Gyn.*) in which colicky pains and tetanic spasms supervened upon the intra-uterine injection of iodine. The patient suffered from chronic endometritis, for which the curette was used. Six days later a slight transient hæmorrhage occurred. Twenty-six hours after the cessation of the latter the author injected iodine tincture for the purpose of stimulating the granulating endometrium. Ten minutes later the patient's countenance was livid gray, the pulse 126 and scarcely perceptible, respiration heavy, and there were severe, colicky pains; besides, a general feeling of stiffness was present, and the thumbs were extended and abducted.

A hypodermic injection of morphine was given and immediately relieved the symptoms. On the following morning the urine

contained albumin. The patient made a speedy recovery.

Dr. GÖRDES is of the opinion that the tetanic symptoms were the reflex results of the colic; he does not believe that any of the iodine entered the circulation through an open uterine vein.

MERCURY;—ITS DISTRIBUTION IN THE ORGANS.

In a paper read at the Second International Congress of Dermatology and Syphilography, recently held at Vienna, Dr. ULLMANN reported on the results of his study, by means of Ludwig's procedure, of the mode of the distribution of mercury in the different organs. In every case—no matter what mercurial was employed,, but particularly when the latter was administered by injections—the greater portion of the mercury was found in the kidneys, the liver, the spleen, and the intestine,—the large intestine containing the most and the stomach the least. At the points where there existed extensive alterations of the mucous membrane, the mercury was most abundant. The brain and the lungs contained traces of the metal.

In the salivary glands, only imponderable traces of mercury were found, and the saliva contained none at all; so that the author thinks the salivation produced by mercury ought to be considered merely as a reflex phenomenon. These researches thus confirm the opinion of ROGER, who attributes to the liver an important part in the excretion of poisons accumulated in the organism.

MOVABLE KIDNEY.

According to Dr. M. STIFLER (*Münch. Med. Woch.*), movable kidney, formerly so rare as to be regarded as a curiosity, nowadays is quite frequent, particularly in women. He himself has observed 100 cases, only 8 of which occurred in men. In 75 cases the affection was on the right side, in 15 on the left, and in 10 on both. Ten cases occurred in persons under 20, twenty between 20 and

30, forty between 30 and 40, and the remainder at a later age. In 3 cases the mother also suffered from the same condition. Although a large proportion of the cases occurred in those who had borne children, yet not a few of the patients were nulliparous.

Increased thoracic and diminished abdominal pressure seemed to be the chief cause. Obesity was present in 15 cases. Ill-fitting corsets were used in 14 cases. In about 35 cases the previous lifting of heavy weights, falls, and riding, were recognized as causes. In 18 cases perityphlitis and perimetritis were the chief causes for the displaced and fixed kidney. In 5 cases masturbation was given as the apparent cause of the disease. In 2 cases the spontaneous dislocation of diseased kidneys was noted. In 8 cases there was no discoverable cause.

According to the author, the severity of the affection depends on the nature and number of the attacks of the so-called strangulation, as well as on the site of the displaced organ and on its mobility. Pain on pressure and on movement was noted in all but 8 cases. Gastric disturbances were present in most of the right-sided and also in some of the left-sided cases. Attacks of strangulation (collapse, pain, vomiting, etc.) were rare, but manifestations of an acute and temporary hydronephrosis, seldom with blood in the urine, occurred more often. Marked diuresis occurred after such attacks. Neurotic symptoms were common. In 15 cases there were manifestations of hysteria. In one case pulsation was communicated from the aorta to the displaced organ.

Purely symptomatic treatment is recommended for the attacks; the diet and the habits of the patient should be so regulated as to avoid congestion of the abdomen. Operation is usually not necessary. Wearing an abdominal belt with cushion materially assisted in bringing about a cure in Dr. S.'s cases.

NEW TEST FOR URINE-SUGAR.

A test for sugar in urine depending upon the formation of indigo-blue has recently been proposed by G. HOPPE-SEYLER. It can be applied directly with the urine, since the albuminoid and coloring principles, it is maintained, do not interfere, as a rule; however, it is stated that more than 2 per cent of albumin does disturb the reaction, and must be removed by precipitation with the lead acetate.

The examination is made by boiling for fifteen seconds 10 drops of the urine with 5 cubic centimetres [$1\frac{1}{4}$ fl. drs.] of the reagent (a solution of 1 part of ortho-nitro-phenyl-propionic acid and 2 parts of sodium hydrate in 200 parts of distilled water). If a blue color be produced, sugar is present; and if the color be deep-blue, the urine contains at least $\frac{1}{2}$ per cent of sugar, it is stated. Normal urine may produce a green coloration; but a distinct blue coloration is not obtainable. It is to be regretted, however, that the quantity of sugar cannot be titrated, but must be approximated from the intensity of the blue color.

SOFT CHANCER ;—TREATMENT.

The following is taken from a very interesting lecture recently delivered by Dr. BALZER, physician to the HÔPITAL DU MIDI (Paris), division for venereal diseases :

As the pus of soft chancre is auto-inoculable and extremely contagious, it often becomes the starting-point of secondary lymphatic infections. The ulceration which it produces extends most frequently only in surface, and the latter may rapidly become considerable. It rarely implicates the deeper parts, and it is then, as is well known, that its extension may produce serious results. If one succeed in arresting that extension by sufficiently energetic agents, one destroys simultaneously the contagion and the infectious centre. If the surface is not too extended, ablation might

be tried; it has often succeeded. But if it is impossible or too difficult, powerful caustics or coagulants are resorted-to. The physician's aim should be to modify the ulcerous surface and transform it into a simple wound which can be treated by antiseptics. The therapeutic arsenal is rich; only passing mention is made of red oxide of iron, Canquoin's paste, Ricord's charcoal-and-sulphuric-acid paste (which has had its day), Vienna caustic, etc.—All caustics have their advantages and also their drawbacks; but this class of medicaments has evidently favorably impressed the doctors of the HÔPITAL DU MIDI, since they have recently been studying the employment of a peculiar paste invented by Drs. BALZER and SOUPLET, the composition of which is probably little known to outsiders. The formula is :

Zinc Chloride..... 1 part.
Zinc Oxide..... 10 parts.
Distilled Water..... enough to make a paste.

This is very nearly the same as that employed by Dr. Socin in certain cases; but he uses a larger proportion of chloride of zinc in it.

The paste is applied directly to the soft chancre, or, rather, a small cotton tampon is imbibed with it and maintained in contact with the surface of the ulcer. The application produces quite violent, yet supportable, pain. The neighboring parts may swell a little; but Dr. BALZER has never seen the action of the paste go beyond the surface, so that there is no need of watching its action; the application does not irritate nor encroach upon the healthy tissues in the vicinity. At the end of twenty-four hours, when the dressing is removed, a white, soft, very superficial scar will be seen, which comes off easily. After a single application, more rarely two or three, the virulence of the chancre has disappeared. This paste is the mean, as regards intensity of action, between the strongest and the weakest caustics that have been used in the affection in question; these are usually liquids,

the best being perhaps a solution of *zinc chloride*, which is employed in strengths of from 10% to saturation. It is quite certain in action, and but slightly painful; but it is not diffusible, which might be a serious drawback. Ordinarily, soft chancre is cured by a few applications, made every two or three days. In the intervals, antiseptic dressings are applied—*aristol*, *iodoform*, etc.—Dr. BALZER states that he has obtained the same results with zinc-ether or zinc-alcohol, 1:10.

Other practitioners employ carbolic acid, because its application is not painful, and that is a great point in town-practice. A 10% alcoholic solution of the crystallized acid is used; the applications being renewed daily; in the intervals, the ulcer is dressed with an antiseptic powder.

As is known, RICORD, DIDAY, FOURNIER, and others have recommended and still recommend *silver nitrate*. Some prefer a very strong or even saturated solution; others, a weak one (3:100). This medicament suffices often by itself to arrest the disease.

Chloral hydrate (2:100), sodium silicate (3:100), resorcin (5-10:100), have recently also been recommended. BALZER has never employed these medicaments, but has obtained good results with *camphorated salol* and *camphorated naphthol*. He also recalls the citrate of iron, and potassio-ferric tartrate, the medicament preferred by RICORD.

Iodoform is cited as the agent most frequently employed for the antiseptic dressings; it can all by itself cure the soft chancre, without the employment of any caustic. But it is objectionable on account of its odor, which, in spite of the numerous alleged deodorizers, can be suppressed but momentarily. *Iodole* and *aristol* are free from this drawback, but are much less active. Hence, people of the better class are generally advised to employ *iodoform* at night, and *aristol* or *iodole* during the day. *Salol* is unreliable; it has cured certain soft chancres of a terebrating course,

but it irritates the epidermis in the vicinity, and sometimes it is not sufficiently energetic. At the HÔPITAL DU MIDI, a mixture of 1 part of chloride of zinc and 9 parts of oxide of zinc, enjoys the best reputation as a dressing for soft chancre. It is inodorous, just as antiseptic as *iodoform*, and very cheap. If it should prove a little too caustic, the proportion of oxide of zinc may be raised to 15 parts. At the present this powder is prescribed in every case of soft chancre presenting itself at the hospital.

TERRILLON has recently proposed a mixture of 1 part of pyro-gallic acid and 9 parts of powdered starch. Ordinarily one or two applications suffice to destroy the virulence of the chancre.

Certain preparations of bismuth have also rendered good services. Dr. BALZER does not think much of *dermatol*, but has obtained rapid and certain cure, in women, with a solution of crystallized nitrate of bismuth in 10 parts of water acidulated with nitric acid,—used as *attouchements*, in combination with *iodoform* dressings.

—In conclusion, the treatment of soft chancre may be briefly summarized as follows: Extreme cleanliness; complete as possible asepsis all around the virulent focus; warm local baths of a temperature at least as high as 40° C [104 F]; caustic *attouchement* after the local bath, as often as is necessary to transform the sore into a non-virulent surface comparable to a simple wound; in the intervals between the *attouchements* and after the presumed extinction of the virulence, permanent dressings with weak antiseptic solutions or powders (*iodoform*, *iodole*, silver nitrate, 10 % trituration of zinc chloride, etc.), until complete cicatrization obtains; finally,—rest, freedom from irritation to the surfaces, and, in the debilitated, tonic treatment.

MERCURY NITRATE OINTMENT is recommended as an efficacious means of aborting *boils*, if applied early.

GATHERED FORMULAS.

112.—Camphor in Diphtheria.

[GAUCHER.]

—COLLUTORIUM—

Camphor.....	20 parts.
Castor Oil.....	15 “
Alcohol (90 %).	10 “
Carbolic Acid (cryst.).....	1 part.
Tartaric Acid.....	1 “

Apply to the mucous membrane, previously mechanically freed from the pseudo-membranes by means of a piece of cotton or linen, every 2-3 hours. (After the applications, it is recommended to irrigate with a 1% solution of phenol, in the case of adults, and with a ½% solution of the same drug in children.)

113.—Hydrastinine in Metrorrhagia.

[Lyon Médical.]

—PILLS.—

Hydrastinine Hydrochlorate..... 0.5 gramme [7½ grains].

Glycyrrhiza Extract } of each, a sufficient quantity.
Powdered Glycyrrhiza }

Divide into 10 pills! One daily for a few days preceding the expected flow, and two daily during the same.

114.—Alopecia.—(Treatment.)

[Poitou Médical.]

—OINTMENT.—

Gallic Acid.....	3 grammes [45 grains].
Lavender Oil.....	15 drops.
Vaselin.....	30 grammes [1 ounce].
Castor Oil.....	20 grammes [5 fl. drs.].

Externally!

(If the alopecia is consequent upon some severe acute disease [Typhoid, etc.], the hairy parts are anointed with this pomade every evening; if the hairs yet present are very thin, it is best to cut them off either partly or entirely, before applying the ointment, because they will acquire their former strength again *quickest* when so treated.)

115 to 117.—Bismuth Sub-gallate in Skin Diseases.

[ROSENTHAL—Berl. Klin. Woch.]

—PASTES.—

Bismuth Sub-gallate.....	2 grammes [30 grains].
Zinc Oxide	} of each, 24 grammes [6 drams].
Powdered Starch }	

Vaselin.....50 grammes [1⅝ ozs.].

or:

Bismuth Sub-gallate..... 5 grammes [1¼ drams].

Zinc Oxide..... }
Powdered Starch } of each, 22.5 grammes [5½ “].

Vaselin.....50 grammes [1⅝ ounces].

Externally!

—GELATIN.—

Bismuth Sub-gallate }
Zinc Oxide..... } of each, 5 grammes [75 grs.].

Gelatin.....30 grammes [1 ounce].

Glycerin.....30 grammes [6 fl. drs.].

Distilled Water.....30 grammes [1 fl. oz.]

Externally!

118 and 119.—Dentior Difficilis.—(Treatment.)

[Gaz. des Hôpit. de Paris.]

—MOUTH-WASH.—

Cocaine Hydrochlorate..0.1 gramme [1½ grains].

Potassium Bromide..... 1 gramme [15 grains].

Glycerin..... 20 grammes [4 fl. drs.].

Distilled Water..... 20 grammes [5 fl. drs.].

Rub into the gums with the index finger.

—MIXTURE.—

Potassium Bromide..... 1 gramme [15 grains].

Orange-flower Syrup.....120 grammes [3 fl. ozs.].

Tablespoonful at night-break.

120 and 121.—Pyoktanin in Frost-bites.

[THE SAME.]

—OINTMENT.—

Yellow Pyoktanin.....0.25 gramme [4 grains].

Cocaine Hydrochlorate.. 0.5 gramme [7½ grains].

Cerate..... 60 grammes [2 ounces].

or:

Yellow Pyoktanin..... 0.1 gramme [1½ grains].

Cocaine Hydrochlorate..0.25 gramme [4 grains].

Bismuth Salicylate..... 2 grammes [30 grains].

Cerate.....,..... 30 grammes [1 ounce].

Externally!

122 and 123:—Cinchonine Iodo-sulphate as a Succedaneum for Iodoform.

[Le Prog. Méd.]

—DUSTING-POWDER.—

Cinchonine Iodo-sulphate..... 1 part.

Powdered Talcum (or Lycopodium).....1-2 parts.

Externally!

—OINTMENT.—

Cinchonine Iodo-sulphate.....1-5 parts.

Vaselin (or Lanolin)..... 10 parts.

Externally!

ETHEREAL TINCTURE OF IRON TRI-CHLORIDE is employed with success by Dr. WYSS in *chronic nephritis*—10 drops three times a day.

ICHTHYOL, 1–2 drams to the ounce of vaselin, is considered by Prof. HARE the best local application in *acute articular rheumatism*.

EDITOR'S NOTES.

OUR INSTITUTIONS.

ROOSEVELT HOSPITAL OF NEW YORK.

The WILLIAM J. SYMS Operating Theatre of Roosevelt Hospital, which has recently been completed, is located on the southwest corner of Fifty-ninth Street and Ninth Avenue, N. Y. City, and is connected with the main buildings of Roosevelt Hospital by a covered passageway. The building was erected with a bequest of \$350,000 from the late William J. Syms. It is hoped that when the equipment is completed \$150,000 will remain for the maintenance of the building.

The building is two stories high in front and three in the rear, with a glass cupola in the centre, which furnishes light to the amphitheatre. The arrangement of the amphitheatre and adjoining rooms is due to Dr. CHARLES MCBURNEY, the attending surgeon of Roosevelt Hospital, who was made responsible for the construction and equipment of the building. The amphitheatre accommodates 180 students. Excellent provision is made in the way of auxiliary apartments: recovery rooms, laboratories, library, lounging room, etc., are at hand. The structure has been made as nearly fire-proof as possible, and it is said to be one of the finest buildings of its kind.

ST. LUKE'S HOSPITAL OF NEW YORK.

During the past year there were treated at this Hospital 2,006 patients; 694 cases were declined. Of those treated 924 were cured, 423 discharged improved, 180 discharged unimproved, 213 died, and 206 are still under treatment. Of these, 416 paid full rates for treatment and 81 paid in part. The largest number of patients at any one time was 220 and the average 200. In all there were 73,064 days of care, at an average cost per patient of \$1.34.

HARTFORD COUNTY MEDICAL ASSOCIATION.

This association recently celebrated the centennial of its organization. Addresses were made by the President, A. M. WAINWRIGHT, JOSEPH E. ROOT, M.D., Mayor W. W. HYDE, Dr. NATHAN MAYER, and a number of other gentlemen of the medical and other professions. At the close of these exercises a

banquet was enjoyed, when Senator J. R. HAWLEY, Gov. MORGAN G. BULKLEY, and several others of national and local repute, responded to toasts.

NEW-YORK POST-GRADUATE SCHOOL.

We have to note that the reported resignation of Dr. DORNING, has not occurred, and that the N.-Y. Post-Graduate School still retains his valuable services.

MEDICAL REQUIREMENTS.—(Continued.)

DISTRICT OF COLUMBIA: License granted by a committee of five, which is appointed by the Medical Society of the District of Columbia.

SOUTH ATLANTIC STATES.

VIRGINIA: Examination by the State Medical Board. Fee \$5.

WEST VIRGINIA: Registration of a *bona fide* diploma with the State Board of Health, or passage of examination before said board in anatomy, physiology, chemistry, materia medica, pathological anatomy, surgery, and obstetrics.

NORTH CAROLINA: Examination by the State Board of Medical Examiners,—the requirement being 80 per cent. A temporary license can be obtained while waiting for an examination. Fee \$10.

SOUTH CAROLINA: Examination before a state board.

GEORGIA: License from the State Board and registration of a *bona fide* diploma in the office of the county clerk.

FLORIDA: Examination before one of the six officially appointed board of examiners. Examination includes anatomy, operative and minor surgery, obstetrics, diseases of women and children, and the general laws of health. Fee \$5. Annual license fee \$10.

GULF STATES.

ALABAMA: Examination by the State or County Board of Examiners. Examination lasts about one week. Requirement: 75 per cent in each subject.

LOUISIANA: Indorsement of a *bona fide* diploma by the State Board of Health and registration of said indorsed diploma with the county clerk or a justice of the peace.

MISSISSIPPI: Examination by Board of Censors, in

anatomy, chemistry, obstetrics, materia medica, physiology, pathology, surgery, and hygiene; and a registration of license obtained in the office of the county clerk. Fee \$1.50.

TEXAS: Examination by authorized board and registration in the county clerk's office.

EAST MIDDLE STATES.

MICHIGAN: Presentation of a *bona fide* diploma and registration of the same in the office of the county clerk. Fee 50 cents.

WISCONSIN: No formal requirements; but may be called upon, at any time, to show diploma or license to practice. License obtainable by examination by medical societies of the State. Fee \$10.

OHIO: Attendance upon two full courses of lectures, or the possession of a medical diploma.

INDIANA: Possession of a *bona fide* diploma and registration of the same by the clerk of the circuit court of the county. Fee \$1.50.

KENTUCKY: Possession of a *bona fide* diploma and the registration of the same with the State Board of Health.

TENNESSEE: Possession of a *bona fide* diploma or license by examining board of the State, and registration of the same by the State Board of Medical Examiners. Fee \$1.

[TO BE CONTINUED.]

* * *

Editor MERCK'S BULLETIN.

Sir:—In your last issue I note with interest the publication of the medical requirements for legal practice in the different States.

Recently, I came into the State of Pennsylvania with the intention to practice. As my diploma was conferred by a school of repute, and as I possess other guarantees of competency, I anticipated no great delay and no cost for registration beyond the fee to the prothonotary. Application to two medical colleges to indorse my diploma, revealed the fact that, to secure indorsement, a fee is invariably demanded—in one case \$25., and in another \$30. Further, they require that an examination be passed before the faculty, though neither of the institutions specifies its character. This examination necessitates a residence of some days in the city, with its attendant expenditures; so that the requirements to become a legal practitioner in Pennsylvania are both tedious and expensive.

The law, as published in your October issue, and as it stands upon the statute book, does not show this; and the facts of the case may be of interest to those intending to come into the State.

Yours, etc.,

I. L. H.

NEW BOOKS.

A MANUAL OF CHEMISTRY, INORGANIC AND ORGANIC.
By ARTHUR P. LUFF, M.D., B.S. Lond., M.R.C.P. Phila.:—
Lea Brothers & Co., 1892. In one 12mo volume; 522 pp.
Price. \$2.00.

Now that the knowledge of chemistry is becoming an essential, if medicine is to be thoroughly understood and scientifically practiced, the need for simple and concise text-books on chemistry is daily growing.

The author of this work remarks in his preface: "Now that chemistry, and especially organic chemistry, has become so vast a science, the student of medicine is, on the one hand, apt to find himself out of his depth in attempting the perusal of the larger hand-books on the subject; and, on the other hand, with many of the smaller works, excellent in their way, he is hampered by omissions of matter essential to the successful after-study and practice of medicine."

"This book has therefore been written to bring together in a concise form those portions of the chemical science that directly or indirectly bear on the study and practice of medicine."

In this attempt, the author has most effectually succeeded.

Part I is devoted to an introductory study of chemistry. While this part is unusually condensed, it is still made perfectly clear.

Part II is devoted to non-metallic elements and their principal compounds. Modes of preparation, characters, formulæ, reactions, and the chief tests.

In part III the metallic elements and their principal compounds are treated in the same systematic and condensed manner.

Part IV is devoted to organic chemistry. In it that department of chemistry which is so intimately associated with the physiological phenomena of the body, is more clearly and simply stated than in any other book with which we are acquainted.

In this section the chemistry of most of drugs in common use is elucidated, also the chemistry of the fats, soaps, and alkaloids.

One of the most valuable points in the book is the exactness and simplicity with which the tests for the alkaloids are given. In fact, all through the work, the methods for testing chemical substances are a noticeable feature.

The coal-tar products, the ptomaines, and leucomaines are briefly discussed.

In part V we find the rules for calculating the weight, volume, etc., of compound as well as simple chemical substances.

Taken all in all, it is an admirable little work.

MATERIA MEDICA AND THERAPEUTICS.—By L. F. WARNER, M.D., Attending Physician St. Bartholomew's Dispensary, New York. Being volume 5 of the Student's Quiz Series.—Phila.: Lea Brothers & Co., 1891. Pocket size, 224 pp., \$1.00.

This little manual is one out of a series of abstract text-books, arranged in the form of questions and answers.

There is now quite a number of series of similar works on the market.

This little work has to its credit this, that it is arranged very much after the admirable classification found in H. C. WOOD's "Therapeutics, its Principles and Practice." Classification in this manner has the advantage of associating in the mind of the student, drugs having a somewhat similar action. While no arbitrary classification can be had, this arrangement enables the student to more easily grasp this most important and difficult department in medicine.

Under each drug the subject is given its botanical department; preparations; physiological actions; the symptoms produced by poisoning; and therapeutic indications. Each of these sections is preceded by a common and general question upon that subdivision.

There is nothing new or striking to be found in its pages.

So far as it goes, the bare facts relative to materia medica are concisely stated but, like all of this class of books, so intensely condensed, it has much that is valuable and essential to a thorough knowledge of the subject, omitted. Absolute errors are less frequent than is commonly the case in this class of books.

For those in attendance upon Prof. PEABODY's lectures and used only as an adjunct to the standard works, it may prove useful.

THE PRINCIPLES OF THEORETICAL CHEMISTRY, with special reference to the Constitution of Chemical Compounds.—By IRA REMSEN, Professor of Chemistry in the Johns Hopkins University. Fourth Edition. Revised.—Phila.: Lea Brothers & Co., 1892. 12mo; 322 pp. Price, \$2.00.

The fact that four editions have appeared in somewhat rapid succession, is in a measure a guarantee of the value of the work.

This treatise is especially adapted to the laboratory student who has an abundance of time and all the facilities with which to study carefully the laws and theories of chemistry.

Had the author brought the volume a little more into touch with the practical and medically applied side of chemistry, the work unquestionably would have been valuable to the general practitioner. As it is, however, it deals masterfully with its subject.

For the student of pure theoretical chemistry, it is an excellent book,—for this edition has been brought fully abreast with the advances of the science.

A MANUAL OF MATERIA MEDICA; Being a Guide to Materia Medica of the Vegetable and Animal Kingdoms. For the use of Students, Druggists, Pharmacists, and Physicians.—By JOHN M. MAISCH, Ph. D., Prof. of Materia Medica and Botany in the Phila. College of Pharmacy. New (fifth) Edition, revised.—Phila.: Lea Brothers & Co., 1892. In one 12mo volume of 544 pp., with 270 engravings. Cloth, \$3.

This, the fifth edition, is devoted chiefly to the study of the origin and botanical description of the substances commonly found in complete works upon materia medica.

Especial attention is given to the description of plant life and its varieties; this is all profusely illustrated, thus aiding the student very much in his endeavor to become familiar with the pharmaceutical and histological sides of the subject.

Under the constituents of the plants we are pleased to note the many cases in which the chemical formula is given, as many works omit this important part altogether.

The properties and antidotes for the poisonous drugs are briefly stated.

The physiological actions of the drugs are entirely omitted.

As a guide to organic materia medica, pure and simple, it is very complete, and presents a fund of valuable information.

BOOKS RECEIVED.

INTERNATIONAL CLINICS; A Quarterly of Clinical Lectures in Medicine, Neurology, Pædiatrics, Surgery, Genito-Urinary Surgery, Gynæcology, Ophthalmology, Laryngology, Otology, and Dermatology, by Professors and Lecturers in the leading Medical Colleges of the United States, Great Britain, and Canada. Edited by JOHN M. KEATING, M.D., JUDSON DOLAND, M.D., J. MITCHELL BRUCE, M.D., F.R.C.P., and DAVID W. FINLAY, M.D., F.R.C.P. Vol. II.; 2nd Series.—Philadelphia: J. B. Lippincott & Company, 1892.

AN AMERICAN TEXT-BOOK OF SURGERY. By CHARLES H. BURNETT, M.D.; PHINEAS S. CONNER, M.D., LL.D.; FREDERIC S. DENNIS, M.D.; WILLIAM W. KEEN, M.D., LL.D.; CHARLES B. NANCREDE, M.D.; ROSWELL PARK, M.D.; LEWIS S. PILCHER, M.D.; NICHOLAS SENN, M.D., Ph.D.; FRANCIS J. SHEPHERD, M.D., C.M.; LEWIS A.

STIMSON, B.A., M.D.; WILLIAM THOMSON, M.D.; J. COLLINS WARREN, M.D.; J. WILLIAM WHITE, M.D., PH.D. Edited by WILLIAM W. KEEN, M.D., LL.D., and J. WILLIAM WHITE, M.D., PH.D.—Phila.: W. B. Saunders, 1892. One royal 8vo volume of over 1200 pages; numerous illustrations. Price: Cloth \$7.00; Sheep, \$8.00; Half-Russia, \$9.00.

A MANUAL OF PHYSICS: being an Introduction to the Study of Physical Science. Designed for the use of University Students. By WILLIAM PEDDIE, D.Sc., F.R.S.E.—New York: G. P. Putnam's Sons; Lond: Baillière, Tindall & Cox. 8vo.; 511 pp. Price, \$2.50.

A MANUAL OF MEDICAL JURISPRUDENCE AND TOXICOLOGY. By H. C. CHAPMAN, M.D.—Phila.: W. B. Saunders, 1892. 36 illustrations; 237 pp. Price: \$1.25.

THE DIAGNOSIS OF DISEASES OF THE NERVOUS SYSTEM. A manual for students and practitioners. By CHRISTIAN A. HERTER, M.D.—N. Y. and Lond.: G. P. Putnam's Sons, 1892. 62 pp. Price, \$3.50.

TUBERCULOSIS OF BONES AND JOINTS. By N. SENN, M.D., Ph.D., Professor of Practice of Surgery in Rush Medical College, etc., etc.—Phila.: The F. A. Davis Co., 1892. Royal 8vo.; 521 pp.; illustrated. Cloth, \$4.00; Sheep or Half-Russia, \$5.00 net.

FOURTEENTH ANNUAL REPORT of the State Board of Health of the State of Rhode Island. For the year ending December 31, 1891.—Providence: E. L. Freeman & Son, State Printers, 1892.

TRANSACTIONS OF THE NEW HAMPSHIRE MEDICAL SOCIETY. Centennial Anniversary, June, 1891.—Concord, N. H.: Republican Press Association, 1891.

RECENT PAPERS.

THE SENSORY-MOTOR FUNCTIONS OF THE BRAIN. By L. Harrison Mittler, A.M., M.D. Reprint from *Medical Record*.

TUBERCULOUS ULCER OF THE STOMACH. By J. H. Musser, M.D.—Reprint from *Philadelphia Hospital Reports*.

THE LIMITATIONS and the Power of Therapeutics. By J. H. Musser, M.D.—Reprint from *University Magazine*.

A PLEA FOR THE MEDICAL EXPERT. By L. Harrison Mittler, A.M., M.D.—Reprint from *Journal of the American Medical Association*.

PHELPS'S OPERATION; A report on the first four cases operated upon for talipes varo-equinus in 1879. By A. M. Phelps, M.D.—Reprint from *University Medical Magazine*.

EMPYEMA and its treatment by Valvular Drainage. By A. M. Phelps, M.D.—Reprint from *International Clinics*.

THE WOOD-CORSET with improvements, for the treatment of lateral curvature and Pott's disease of the spine. By A. M. Phelps, M.D.—Reprint from *New England Medical Monthly*.

THE DOUCHE. By Simon Baruch, M.D.—Reprint from *Illustrated Medicine and Surgery*.

COMBINED GYNÆCOLOGICAL OPERATIONS. By George M. Edebohls, A.M., M.D.—Reprint from *American Journal of Medical Sciences*.

THE PHYSIOLOGICAL IMPORTANCE of the proximate principles and their practical utility in the food-stuffs and in the nutritive processes of the system. By William Henry Porter, M.D.—Reprint from *American Journal of the Medical Sciences*.

VAGINAL HYSTERECTOMY for Malignant Disease of the Uterus. By J. E. Jauvrin, M.D.—Reprint from *New York Journal of Gynecology and Obstetrics*.

DES PREMIERS RAPPORTS entre l'embryon et l'uterus chez quelques mammifères. Prof. Giovanni Paladino, Naples.—Extrait des *Archives italiennes de Biologie*, tome XIII, fasc. I-II.

CONTRIBUTION à la connaissance plus exacte des éléments qui composent les centres nerveux, grace au procédé de l'iodure de palladium. Prof. Giovanni Paladino, Naples.—Extrait des *Archives italiennes de Biologie*, tome XVIII, fasc. I.

SULLE FINE ALTERAZIONI dei centri nervosi e delle radici spinali seguite alla tiroidectomia. Dottor Francesco Capobianco, Naples.—Estratto dalla *Riforma Medica*.

OBITUARY.

Dr. B. M. THOMAS, of Santa Fè, N. M., aged 49.

Dr. J. CULVER DAVIS, of Denver, Col.; at Zürich, Switzerland.

Dr. JAMES H. STEUART, of Baltimore, Md.

Dr. JOHN HANCOCK DOUGLAS, of New York, aged 65. Dr. Douglas was at one time editor of "The American Medical Monthly"; later he edited three volumes of "The New York Medical Journal." He, with Drs. G. F. Shrady and H. P. Sands, attended General U. S. Grant in his fatal illness.

Dr. ARCHIBALD MACLAY, aged 80, at his home, 115 East Sixteenth street, New York City; of pneumonia. He was graduated from the College of Physicians and Surgeons in 1834.

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THE EXCRETORY WORK OF THE KIDNEYS.

The functional activities of the renal glands are divided into two grand series. The first comprises the changes effected through the action of the glomeruli; the second, the changes brought-about through the agency of the epithelial cells lining the uriniferous tubules.

Athwart the walls of the blood-vessels constituting the Malpighian tufts is filtered the water with the inorganic salts held in solution. Through the agency of the epithelial cells lining the uriniferous tubules the urea, uric acid, and creatinine are normally formed, and discharged into the lumina of the renal tubules. Also, in the various abnormal conditions of the system, the various by-products of proteid oxidation are eliminated by the action of the epithelial cells. Most common among them are derived albumin, glucose, oxalic acid, lactic acid, hippuric acid, and the various leucomaines and ptomaines.

The function of the glomeruli is comparatively simple, being entirely although indirectly under the control of the vasomotor system of nerves. Experiments have shown that a division of the spinal

cord below the medulla greatly diminishes the flow of urine. The explanation of this phenomenon is, that large vascular areas are cut-off from their communication with the medullary vasomotor centre; this, together with the general shock to the spinal cord, destroys the innervating impulses distributed to the muscular walls of the blood-vessels throughout the body. Their lumen expands, and a great fall in the general blood-pressure is the final result.

With this general vascular relaxation, comprising also the renal artery, it might be expected that a larger volume of blood would pass to the kidney and an augmented flow of urine would follow; but the great fall in the general blood-pressure overbalances the effect produced upon the renal circulation; hence the actual hydraulic pressure in the glomeruli is decreased, and the flow of urine is consequently less than normal.

Stimulating the spinal cord below the medulla, affects the cord in an opposite manner from division, but produces the same diminution in the quantity of urine excreted.

This is explained by the renal artery becoming so much contracted by the in-

creased innervation distributed to its muscular wall, that the blood is largely shut-out from entrance into the kidney, similarly as in ligation of the renal artery. This sudden reduction of the renal circulation overbalances the good effect which might have come from the general rise in blood-pressure. Therefore it is clear that directly opposite actions upon the cord will *not produce opposite results* upon either the renal circulation or excretory function.

Those physiological effects clearly explain how, under apposite circumstances, drugs possessing entirely different properties may produce clinical phenomena almost identically parallel.

Section of the renal nerves produces a marked relaxation of the renal artery. This greatly augments the volume of blood distributed to the kidneys; thus increasing the blood-pressure in the capillary vessels which constitute the Malpighian tufts. This augments the flow of urine, because the general blood-pressure remains nearly normal.

Section of the spinal cord, *after* division of the renal nerves, arrests the polyuria, by suddenly dilating the arteries and increasing the general vascular capacity *outside* of the kidney; thus reducing general blood-pressure and in this way withdrawing the high pressure from the glomeruli.

Stimulation of the spinal cord, *after* division of the renal nerves, *still further* increases the flow of urine, by contracting the general arterial capacity outside the kidney; thus raising the blood-pressure in the glomeruli to a still higher degree.

The same kinds of results are obtained by division of the *splanchnic* nerves; but the action upon the kidney is less positively marked because *the whole* splanchnic arcade responds *simultaneously* to the

impulses causing rise or fall in the blood-pressure.

From these facts, it is clear that the quantity of water discharged from the kidney is dependent upon the relations between the hydraulic pressures within the glomeruli on the one hand, and in the arterial system throughout the body, on the other hand.

The function of the epithelium, *per contra*, is much more complex. Without going into details, it may briefly be said that the epithelial cells have been proved to have for their function the final formation and excretion from the blood—normally—of the urea, uric acid, and creatinine; and—under abnormal states of oxidation—of oxalic acid, lactic acid, hippuric acid, glucose, albumin, leucomaines, and ptomaines, and, in fact, all the possible by-products of proteid oxidation. With this general understanding in relation to the functional activity of the glomeruli and epithelial cells constituting the kidney, the physiological action and therapeutic possibilities of drugs which act upon the excretory action of the renal glands can be intelligently discussed.

DIGITALIS THERAPY IN KIDNEY LESIONS.

Considerable doubt and difference of opinion prevail in regard to both the degree and mode of utility of digitalis and its various preparations; notwithstanding that this drug has been extensively administered for more than a century,—some praising it highly, while others, with equal vigor, condemn it as worthless.

HURCHARD has somewhat recently advanced the opinion that digitalis, even when given in large doses, is not hurtful in pathological conditions of the kidney. He claims that on the contrary

it is useful in the condition known as parenchymatous metamorphosis or degeneration, because it diminishes the amount of albumin excreted with the urine.

Before the true therapeutic value of digitalis can be intelligently discussed, its chemical character and physiological actions must be clearly and definitely understood.

Then, also, before attempting to apply digitalis scientifically as a therapeutic agent, a clear conception must be had of the ætiological factors entering into the production of these renal affections; the exact pathological lesion extant must be accurately determined; and each detail of indication built thereon must be accurately complied-with. *Otherwise*, this or any drug cannot be given in other than a most empirical manner; and disappointment and failure must follow its use quite as frequently as, if not more commonly than, success.

First,—what is digitalis, and what are its physiological powers so far as the functions of the kidneys are concerned?

The drug called Digitalis, as is well known, is the leaf of the Foxglove (*Digitalis purpurea*), which contains four active and several inert principles. The four active agents are Digitoxin, Digitalin, Digitalein, and Digitonin. The chief inert element is named Digitin. The first three are freely soluble in alcohol; while Digitoxin is practically insoluble in water, Digitalin only sparingly, and Digitalein freely soluble in water. Digitonin is hardly at all soluble in alcohol, but quite freely so in water,—crystallizing readily from 85-per-cent alcohol.

Hence, all preparations made from the crude drug with alcohol are apt to contain the first three active principles to the full extent to which they are present in it; while all watery preparations or infusions are composed largely of the third

and fourth elements, Digitalein and Digitonin, and contain little or no Digitoxin and only a moderate percentage of the remaining active agent, Digitalin.

If all four of these active elements had identically the same action, it would make little or no difference, outside the relative percentage strength, which kind of preparation was employed,—one made with the aid of alcohol or one with water alone.

Having, however, different atomic compositions, some of these active principles differ in action from the others that chance to be associated with them in the same plant.

The first three are, however, so nearly alike in the *kind* of their effects upon the system, that they may be regarded as practically one and the same,—with the exception of greater *intensity* of action being claimed for *Digitoxin*. They all *increase* the intrinsic force of the muscular contraction of the heart; they *shorten* the systolic and *lengthen* the diastolic periods or cycles in the heart's action. At the same time they all very materially *increase* the general arterial tension throughout the system, *with the exception of the splenic arcade*, which includes the renal glands. In this portion of the circulation the arteries dilate, thus augmenting the quantity of blood which can be driven through the abdominal vessels—including in this category the kidneys—in a given time.

The fourth principle, Digitonin, *primarily* poisons the heart-muscle and *decreases* its intrinsic contractile power; it also causes a lengthening of *both* the systolic and diastolic periods of the cardiac cycle. At the same time it *dilates* the arteries.

The above facts being accepted as they are stated by pharmaceutical chemists and physiological experimenters,—if pos-

itive and uniform results are to be obtained, *purely alcoholic preparations of digitalis only should be administered, or the Glucosides themselves*,—being the active principles above described, as belonging to the first or heart-toning group. Only, in this case, special care should be exercised as to procuring a *reliable* article, of tried, uniform character and strength. But, when aqueous or semi-aqueous preparations only are employed, the one group of active principles will, in a measure, antagonize the other in its effects. When this is the case, the animal economy is uselessly taxed, to transmute those foreign elements and eliminate them from the body, and the system is more or less damaged, *without* securing the desired physiological action.

Under these latter circumstances, the therapeutic results naturally become problematic and uncertain at best; which easily explains the abundance of *contradictory clinical evidence* regarding this drug.

Further than this,—it has been ascertained that digitalis is *not eliminated* from the system by the kidneys in any of the above-mentioned forms; therefore its diuretic effects upon the system can not be explained by its elimination, *as such*, through the kidneys.

As these active or glucosidal principles are composed of carbon, hydrogen, and oxygen, they are all capable of being oxidized within the system into carbon di-oxide and water. While these elements are passing through this transmutation process, they yield heat and energy; and, by acting upon the nervous mechanism, they chiefly yield the physiological actions of digitalis. Primarily, the first three act upon the cardio-innervating center and *the primary or medullar vaso-motor centers*,—increasing the number of cardiac pulsations and at the same

time tightening-up the entire arterial system outside the splenic arcade. Later, the cardio-inhibitory center feels the effects; which fact, together with the unduly high tension produced, naturally increases the peripheral resistance to the heart-action.

As a natural sequence, the heart at first beats more rapidly and forcibly against a steadily increasing peripheral resistance,—excepting of course the splenic arcade, in the domain of which the capacity of the blood-vessels is increased and a larger volume of blood is moved through them in a given space of time. At this point the common law of physics comes into play, in this, that the increased resistance in front of the heart, as the result of the augmented arterial tension, greatly augments the task of the heart as a mechanical pump. Consequently, the number of strokes to the minute must be reduced, to increase the power of the heart *per stroke*, in overcoming the greater resistance placed against it as described.

If the increased volume capacity in the splenic arcade were equal to the general decrease in the remaining portions of the arterial system, the actual amount of work imposed upon the heart would not be augmented;—but this equal balancing does not seem to take place. The general contraction is much greater;—which, together with the increased high tension in the coronary arteries, as already elucidated in discussing the “Cumulative Action of Digitalis,” cuts down the time for nutritive interchange between the blood in the coronary vessels and the muscular tissue which constitutes the heart. As a necessary result of this increased work thrown upon the heart, and at the same time of a reduction in nutritive supply, the heart must work slower and ultimately less effectually. This lat-

ter condition explains fully the so-called "Digitalis accumulation" (see our past *March Number*).

Thus it becomes clear that the chief action of digitalis in influencing the renal functions may be explained through its power to change the mechanical workings of the heart and of the circulatory vessels,—which causes an abnormal distribution of the blood, and therewith an equally abnormal distribution of nutritive supply.

If digitalis is continuously administered with increasing dosage, the *secondary or spinal* vaso-motor centers can be stimulated, and thus *a high tension can be produced in the splenic arcade* as well as in the rest of the arterial system.

When this effect has been produced, almost all nutritive interchange throughout the body is thereby arrested. Owing to the reduced lumina of the renal arteries, then, whatever blood reaches them is driven so rapidly through the kidneys that no proper time is allowed in which the epithelial cells can formulate and eliminate the effete material taken from the blood. Or, if the contractile effect be yet heightened, the renal arterioles may be so much contracted that the circulation in them is arrested. In either instance a rapidly developing anæmic condition is induced in the tissues generally; the function of the kidneys is practically or absolutely suspended; and the patient finally dies with the toxic symptoms of uræmia.

With this knowledge at hand, and remembering that all renal lesions have for their chief ætiological factor an increase in the amount of work imposed upon them at a time when their nutritive supply is below the normal standard,—the therapeutic possibilities of digitalis can be rationally considered.

Having found, in the study of the

"Functions of the Kidney," (above), that the quantity of water discharged is largely dependent upon the hydraulic pressure reigning in the glomeruli, we shall see that this law is the chief factor in explaining and determining the utility of digitalis.

To summarize :—When digitalis is given to a normal individual, the general blood-tension is increased and the heart's action intensified. This might be expected to increase the hydraulic pressure in the glomeruli and augment the flow of urine. But, owing to the fact that there is no obstruction to the exit of blood from the kidney, the blood is simply driven more rapidly through the kidney, and the pressure in the glomeruli is not increased above the normal. Consequently the amount of water discharged from the kidney remains about normal; but, owing to the greater speed of the blood in passing through the kidneys, less time is allowed for the epithelial cells to formulate the nitrogenous waste and eliminate it from the body. The increase in the speed of the blood in its passage through the kidney also lowers the perfection in the nutritive interchange between the blood and the renal tissue, and tends to damage the kidney tissue. —*These conditions* sufficiently elucidate the physiological actions and therapeutic possibilities of digitalis in renal affections.

In all kidney lesions in which there is *no marked swelling of the epithelial cells* (which when present compresses the venous capillaries on the efferent side of the Malpighian tufts),—but in which the venous exit from the kidney is unimpeded,—digitalis, as in the normal kidney, simply drives the blood through the kidney more rapidly without augmenting the hydraulic pressure in the glomeruli. Consequently, digitalis, in this class of cases, *does not produce any diuretic action,*

but *decreases* the excretory function of the kidney, impairs the nutrition of the renal tissue still more, and practically makes the renal lesion *worse*.

On the other hand,—if there is a general venous engorgement of the system, a passive congestion of the kidney, or an active determination of blood to the organ until the circulation therein is impeded,—a result different from the above is obtainable by the use of digitalis. Likewise in all forms of parenchymatous metamorphosis or degeneration of the epithelial cells; where these become swollen and compress the veins *outside* the Malpighian tufts, and thus prevent the normal and free escape of blood from the efferent vessels of the glomeruli.

In all *these* instances, when digitalis is first administered, the results may be sketched as follows:—The heart's action is intensified and the general arterial tension is greatly increased. At the same time the splenic arcade, which includes the renal system, and which is *not* thus affected, is by the general pressure driven to expand; the volume of blood discharged into the kidney is therefore greatly augmented, and the blood-pressure in the vessels of the glomeruli rapidly rises. Now, as a result of the obstruction to the venous escape, one of these two things must follow: The circulation through the kidney must stop, the capillaries constituting the Malpighian tufts must burst, and the increased pressure be relieved by an escape of the blood into the tubules; *or*, the watery constituent of the blood must flow-off through the uriniferous tubules.

The latter is the commoner solution; which, when it occurs, results in a rapid increase in the amount of water discharged—thus furnishing typical clinical evidence of the diuretic properties of the drug.

With the relief of pressure *within* the glomeruli, and with the continued steady high pressure upon the engorged venous system in the kidney from the arterial side, the sluggish circulation throughout the renal gland is improved,—thus allowing a more nearly normal volume of blood to pass through the kidney in a given time than before. When *this stage* is reached, the solid ingredients eliminated by the kidneys are augmented, as well as the water (for *too slow* blood-passage, *as well as too quick*,—which was shown above,—prevents the securing of a normal amount of proper nitrogenous excretion through the renal epithelium). Thus, digitalis, *in these cases*, becomes a *true diuretic* in every sense.

The improvement in the circulatory activity, which is now raised from a low ebb to a normal standard; together with the increased excretory activity of the renal glands, very decidedly tends to enhance the local nutritive activity in the kidney itself, and *to cure* the parenchymatous lesion and all lesions of the above-described allied group,—thus fully sustaining the assertion of Hurchard in reference to this class of renal lesions. It also shows why the giving of digitalis empirically, and without determining the true nature of the pathological change, will result in failure quite as often as in success. Administered *when it has no power to act*, its therapeutic result must be *nil*; but given when and where it has the power to act, digitalis is one of the most valuable diuretic drugs in the pharmacopœia.

Its cumulative effects upon the heart and its liability to impair the general nutritive activity throughout the body must always be borne in mind; and consequently the *continuous* administration of Digitalis should be avoided.

MEDICAL REPORTS

TO "MERCK'S BULLETIN."

THE DIET IN EPILEPSY.

By GRAEME M. HAMMOND, M.D.

It is generally conceded that a wise regulation of the diet is an essential feature in the treatment of Epilepsy. Most authorities are very positive on this subject, and formulate stringent laws particularly directed against the ingestion of meats.

HAMILTON (Ref. Handbook of Med. Science, Vol. II.) voices the general sentiment of most neurologists when he says: "The diet of epileptics should be of a vegetable nature. Meats are highly injurious; but *moderate* use of game, poultry, fish, and oysters is to be advised. Fresh vegetables, fruit—except grapes, milk, and cold bread, should form the chief articles of diet. Stimulants are of course out of the question in most cases."

GOWERS (Dis. of Nervous System), on the other hand, holds exactly opposite views. He has "known the exclusion of meat from diet to cause a great increase in the severity of fits, which became slighter when meat was again given." He considers that "patients do best if a moderate quantity of animal food is given twice a day, care being taken to avoid that which is indigestible." He refers to one case, however, in which the patient could never take beef without bringing-on an attack, although he could take other kinds of meat with impunity.

NO ABSOLUTE RULES

regulating the diet can be formulated, which are equally applicable to all cases. The treatment of epilepsy is necessarily slow, and in most cases is prolonged over a period of several years. With many people the pleasure of the table is an important feature in their lives, which they are often most unwilling to give-up. If they are compelled to do so and forced to live upon a very

restricted diet, which they soon get to detest, they become irritable, moody, and depressed. Such a mental condition is undoubtedly detrimental to perfect digestion. It is therefore best to give as much latitude as is consistent with the severity of the disease.

In adults with a good constitution and who have only suffered from a few epileptic seizures, I very seldom restrict the diet at all, merely warning them not to overload the stomach and to avoid those things which experience has taught them are indigestible. The only exception to this plan is made in those cases in which the epilepsy has seemed to follow prolonged excesses in eating and drinking. In such cases the greatest care must be taken to keep the gastrointestinal tract as free from irritation as possible.

The following cases illustrate the preceding points.

—CASE I.—

A gentleman, thirty-one years of age, consulted me in September 1888. For a year he had had a great deal of worry in relation to his business. His sleep had been disturbed, he suffered from unpleasant dreams, attacks of vertigo, bleeding from the nose, and general depression of spirits. These symptoms culminated in a severe epileptic fit, which came on early in the morning while he was asleep. The attack lasted about two hours. Three days later he had another severe attack. This also came on during sleep.

I saw him two days after his second attack. Medicinal treatment was prescribed; his business hours were curtailed; and suitable exercise was ordered. His diet was not restricted; the only advice in this respect was to caution him against over-eating. He was a man of simple habits who lived upon

plainly cooked food and was not at all given to over-indulgence in either eating or drinking. I have seen him frequently since he began treatment, over four years ago. He has never had another attack.

—CASE II.—

In September 1888, a girl, thirteen years of age, was brought to me, suffering from epilepsy. She had had her first attack when she was three years of age. During the next four years she was entirely free from them. Then they appeared again, and up to the time she was ten years of age she had probably had four or five attacks. From the age of ten up to the time I first saw her she had had attacks at intervals of about three or four months.

The parents were instructed not to allow the child to over-eat, and to avoid giving her articles of food which were commonly known to be indigestible; but no further restrictions were imposed. Although over four years have elapsed since treatment began, the patient has not had any attacks. The menstrual period came on naturally and has remained normal in every particular.

In dispensary practice it is not uncommon to observe similar cases improve in the same way. In these cases very little attempt is made to follow a regulated diet; or if it is inaugurated it is seldom continued for any great length of time. The food which the poorer class of people eat is of poorer quality than that afforded by the well-to-do. It is often not properly cooked, and in many ways is more apt to be indigestible than the food prepared for those who are in comfortable circumstances; and yet, the dispensary patient who follows out the prescribed medicinal treatment progresses fully as well as the others. In this group of cases there seemed to be no irritation of the gastro-intestinal tract; but in another group, of which the following case is an example, the dietary treatment of the patient plays a very important part.

—CASE III.—

A gentleman, twenty-two years of age, consulted me in October 1885. He was wealthy, fond of good living, and frequently indulged immoderately in both eating and drinking. During a visit of ten days at a seaside resort in August he indulged in heavy dinners and late suppers almost nightly and had also drunk a great deal of alcoholic stimulants during the day. While waiting in the depot for the train to take him home, he had a very severe convulsion. Three days later, after dining heartily, he had another. From this time on, up to the time I saw him, he had an attack on an average once a week.

Medicinal treatment was, of course, given to him. Believing that prolonged irritation of the gastro-intestinal tract was a prime factor in the causation of the attacks, it was considered best to relieve digestion as expeditiously and completely as possible. A diet consisting entirely of skim-milk, about two quarts a day, was prescribed, and continued for a month. At the expiration of that time raw oysters, and oyster and chicken broths, were occasionally allowed. At the end of another month small quantities of chicken and lamb, with fresh vegetables, were permitted; but the meat was given but once a day. Gradually the diet became more liberal; so that, at the end of six months, it was general, with the exception of pork, corned beef, and veal. All food was plainly, yet appetizingly cooked. Alcohol was not permitted.

The patient had no return of the convulsions. He continued medicinal treatment about four years and then discontinued it. He subsequently married and is to-day a successful business man and apparently in robust health; but he never dissipates nor is he ever immoderate in the indulgence of any appetite.

This is one of a class of cases in which a cure is very difficult to achieve. Ignoran

and uneducated people are either incapable of being sufficiently impressed with the necessity of maintaining a strict dietetic regimen; or else they become careless and by their indiscretions counteract any benefit which they might have derived from medicinal treatment. Even among the educated and refined the tendency to deviate from the marked course is very great. When they are constantly seated at the table upon which deliciously cooked dishes are placed, the appetite often proves stronger than the resolution; and the patient yields to temptation and eats of the forbidden fruit. In many instances he neglects to mention these falls from grace to his medical adviser.

In no class of cases is the necessity for

A SIMPLE NON-IRRITATING DIET

more imperative. The various organs concerned in digestion do not excrete their juices in sufficient quantities to properly perform their functions. Digestion is more or less controlled or influenced by cerebral conditions; and when a depressed mental state is continued for a length of time, as it is in epilepsy, the digestive organs are decidedly impressed and become habitually sluggish in their actions. Hence the ingestion of food in large quantities, or of food which is particularly rich in some substance which requires concentration of any one or more of the elements of the digestive juices, must be avoided.

Both theoretically and practically, the ideal food for severe cases of epilepsy, or for those cases depending upon gastro-intestinal derangement, must be one that contains small quantities each of proteids, fats, and carbo-hydrates. Milk which has been skimmed contains about three per cent of proteids, less than one per cent of fats, and about four per cent of carbo-hydrates. Here then is a food which contains all of the elements requisite for nutrition in small enough quantities to be acted-upon even by a very small proportion of the normal quantity of digestive juices.

SKIMMED MILK

should therefore constitute the sole article of diet in severe cases of epilepsy with lowered digestive activity, and also in epilepsy induced by a disordered gastro-intestinal tract. If the convulsions have been of frequent occurrence or the disease has existed for a long time, the skimmed-milk diet should be continued until the patient has been from one to three months without an attack. The addition of other simple and digestible articles of food should be made with great caution.

The cerebral functions unquestionably suffer from reflex influence resulting from disorders of digestion. Symptoms of cerebral irritation, such as vertigo, insomnia, and headache, are not uncommonly observed after over-eating. It can readily be understood, therefore, that an individual who suffers from repeated epileptic seizures, and whose brain is almost continually in an abnormal condition of irritation, is particularly liable to attacks when the digestion is taxed beyond its capabilities. In time, as the convulsions become less frequent, the diminished cerebral irritability permits greater digestive activity, and food containing more nitrogenous matter can be gradually administered.

Still later, the diet can be made more general; but the utmost precaution should be taken to guard against taking a greater quantity of food into the stomach than the digestive juices can manage. It is the quantity of food as often as the quality which induces indigestion in epileptics.

In the

FUNCTIONAL EPILEPSY OF INFANCY,

I think an improper diet plays a more conspicuous part in the ætiology than all other sources of reflex irritation combined. Particularly is this the case among the lower classes. It is not at all uncommon to find mothers feeding infants only one year old on the same food that they eat themselves. Under such conditions, and even under

more favorable circumstances, it is not surprising if infants who inherit a strong neurotic tendency develop epilepsy. In such cases there can only be one diet; and that is peptonized and sterilized skimmed milk.

Overfeeding is just as much to be deprecated in the infant epileptic as in the adult, and for the same reasons. As a rule, the healthy infant is overfed. Most mothers consider that every time her baby opens its mouth, food, and as much food as the child will take, must be put into it. Healthy children may stand this treatment, though their digestion will suffer from it later; but epileptic infants must be treated differently if a successful termination of the case is to be accomplished.

I seldom, if ever, allow anything but an exclusively milk diet in epileptic children until they are over four years of age; and not even then unless they have been free from epileptic seizures for fully two years. Until they are seven or eight, milk should be the most important element of their diet. Nitrogenous foods, particularly meat, should be given sparingly; and those meats which are known to digest slowly—such as pork, veal, corned beef, and turkey—should not be given at all.

IN ORGANIC EPILEPSY

such as results from injurious or pathological conditions within the brain, a careful and restricted diet should be *maintained as long as the patient lives*. Such cases are hopeless from the start so far as a cure is concerned; but a great deal can be done to minimize the frequency of attacks by proper diet. Light meals of simple, plainly cooked and digestible food should be taken at regular hours.

Small quantities of meat once or twice a day, fresh vegetables, a small quantity of butter, and bread which has been baked not less than six hours previously, with weak tea or coffee once a day, is a diet which should not be deviated from to any

extent by those who suffer from organic epilepsy.

It can readily be seen from what has just been said that the question of

DIET MATERIALLY AFFECTS THE PROGNOSIS

of the disease. The efficacy of medicines which diminish cerebral irritability is greatly impaired, or even inhibited totally, by the ingestion of food which provokes indigestion and reflexly increases the cerebral irritation. Therefore, in all cases of epilepsy, except in the class of cases first cited and in which the cerebral irritation seems to be at a minimum, suitable diet, regulated by the age and condition-in-life of the patient, must certainly be considered a very important feature of the treatment.

58 W. 45th St., NEW YORK CITY.

“HARMEL” or Hural is the seed of *Peganum Harmala*, a Rutacea-Zygophyllea cultivated in Europe. It is credited with all the properties possessed by Indian hemp and ergot.

TARTAR EMETIC is anew recommended in *phthisis*, by Dr. BUCQUOY, of Paris. He gives 10 to 15 centigrammes [$1\frac{1}{2}$ – $2\frac{1}{4}$ grains] in the beginning of the treatment, and rapidly descends to 5 centigrammes [$\frac{3}{4}$ grain] a day, administered in a gummy mixture containing opium.

ICTERUS OF MENTAL ORIGIN is said by Prof. POTAIN to be produced as follows:—A vivid mental impression, by acting on the abdominal plexuses, may produce a paralytic dilatation of the blood-vessels of the liver, in consequence of which the pressure is suddenly lowered in the hepatic circulatory system. Now, if the pressure in the neighboring bile-ducts be not simultaneously modified, exosmosis may be established from the latter toward the former, whereby bile is made to pass into the blood. Hence the icterus.

PREVENTION OF RELAPSE AFTER THE CORRECTION OF DEFORMITY IN CLUB-FOOT.*

By B. E. McKENZIE, B.A., M.D.

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The partial recurrence of the deformity, after all modes of treatment having for their object the rectification of the malposition of club-foot, is seen so frequently that an inquiry as to the causes thereof, and the means by which relapse may be prevented, is of much importance.

No one tissue of the foot is entirely at fault in causing or maintaining the deformity. Before treatment, the skin, fasciæ, ligaments, tendons, and bones at the inner side of the foot are too short, and the tissues at the outer side are relatively lengthened. When correction is made by non-cutting methods, the tissues at the outside become shorter only by the same processes of change as occur in the tissues behind the knee when the leg has been kept long flexed,—namely by contracture. The same is true in methods of operation dependent upon cutting the shortened structures of the concave part of the foot. A long time is essential in order to permit of sufficient shortening to hold the part of the foot anterior to the mid-tarsal joint well everted.

The shortened tissues of the inner side, when stretched so as to permit even of over-correction, long manifest their elasticity and a disposition to invert the foot,—relapse not infrequently resulting.

The patient is sometimes permitted to spend the night in bed without having any retentive apparatus to hold the recently corrected foot in proper position; and in the daytime either wears an ordinary shoe that has little power to keep the foot right, or some form of apparatus that greatly restricts the natural movements and development of the foot. Not only has the natural tendency to relapse full play, but

the weight of the bed-clothes serves to drag the foot into the old position.

This may be prevented by a very simple *night-appliance* shown in Figure II, in which

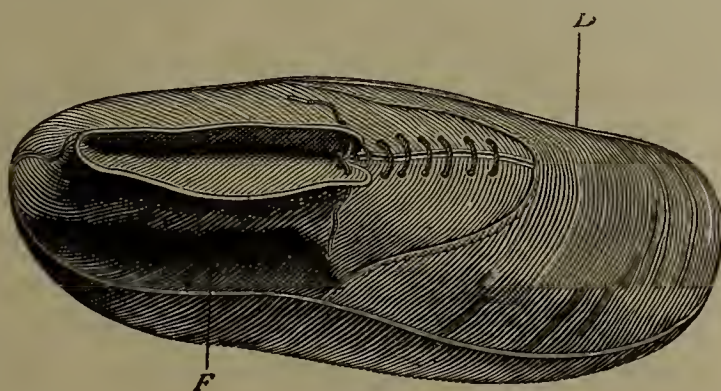


FIG.

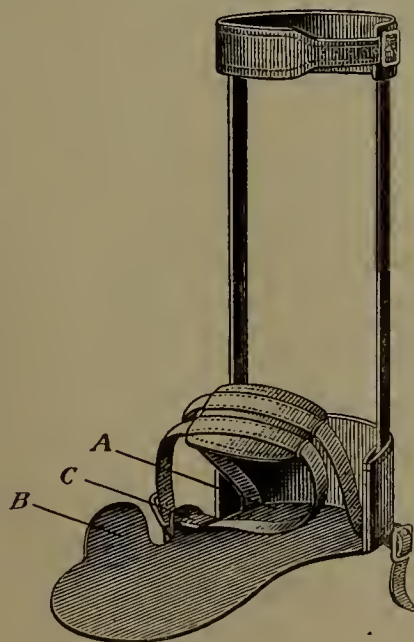


FIG. II.

the foot may be kept fully corrected without causing discomfort. In the use of this brace it is seen that the posterior part of the os calcis and the head of the first meta-tarsal bone rest against supports A and B, while a strap passing over the foot pulls the mid-tarsal region downward and inward toward the fixed point C on the brace. At the same time the heel is held down by a strap passing through the in-step and under the hinder part of the sole-plate in the ordinary way.

In the daytime a shoe may be worn which is simple in its construction and yet compels the wearer to so place the foot on the ground as to avoid the in-turning of its anterior part and also its rolling outward. In the construction of the shoe there are two points demanding attention:—

1st.—The last upon which the shoe is made is not the ordinary straight last. Its anterior half is deflected outward; so that,

* Read at a meeting of the AMERICAN ORTHOPÆDIC ASSOCIATION, at the NEW YORK ACADEMY OF MEDICINE, Sept. 21st, 1892.

when the shoe is made, the part which covers the anterior half of the foot is everted. At the same time the upper of the shoe is supported on the inside at the part covering the head of the first meta-tarsal bone by a strong counter, and on the outer side at the part corresponding to the cuboid and the base of the fifth meta-tarsal.

2nd.—The foundation of the shoe is thickened toward its outer part and projected outward beyond the upper, so as to raise the outer border of the foot and tend to roll it over toward the inner side.

Figure I shows a shoe constructed in accordance with the principles enunciated. The line D and the heavier shading opposite F show the position of the resisting counters in the shoe.

14 Bloor Street, W., TORONTO, Canada:

A RARE CASE OF DOUBLE VENTRAL HERNIA.

By WILLIAM HENRY PORTER, M. D.

Mrs. C., aet. 70, was first seen by the author about one year before she died. At that time she was suffering from obstinate constipation, severe nausea, and vomiting. There was a well-marked high-tension pulse, general muscular tremors, with some diminution in the quantity of urine voided. The whole facial expression and general appearance of the case indicated a uræmic condition. Examination of the urine revealed a low specific gravity and the presence of albumin and casts. Further inquiry into the history of the case showed that Mrs. C. was known to have suffered from Chronic Diffuse Nephritis for at least eight years.

Examination of the abdomen at that time revealed

A VERY PECULIAR CONTOUR

of the anterior abdominal wall. There was a deep groove extending from above downward in the median line. This furrow commenced at the xiphoid appendix and extended to the symphysis pubis. On the right side of this sulcus, the abdominal wall pro-

truded so as to form a large semi-globular mass, not differing in shape from the ordinary abdominal protrusion, and of about the size of the normal abdomen. On the left side of this median furrow there was a similar globular protrusion, but not more than one-half so large as the one upon the opposite side.

The abdomen taken as a whole resembled the two gluteal protrusions with the anal groove between.

Palpation of the abdomen revealed a well-defined succussion sound, but there was no evidence of fluid in the peritoneal cavity. Neither was there any evidence of impaction of fæces in the colon. Rectal examination also failed to show the presence of impacted fæces in the lower bowel; which would, if present, have accounted for the stubbornness of the constipated condition. Percussion over the abdomen gave a generally tympanitic sound. The heart and lungs were fairly normal.

It was also learned at this time that the peculiar conformation of the abdomen was of long standing,—the patient having given birth to one or two children since its appearance; and that for a good many years an abdominal supporter had been worn when the patient was up, and dressed; because otherwise she would have experienced a great deal of discomfort from these abdominal protrusions.

Further inquiry elicited the fact that, nearly forty years earlier, while the patient was doing some heavy lifting, "something had appeared to give way with a snap in the stomach"; following which, for a few days, there was some pain and discomfort in the abdominal parietes. From this time on the peculiar contour of the abdominal wall had been noticed, and it had gradually increased until it became necessary to support the protrusions by the abdominal band; since which application they had remained about the same in size.

For many years this state of the abdomi-

nal wall and of the contents of the abdominal cavity—practically—had given no particular discomfort; but with advancing years, and since the development of the renal lesion, this tumefaction had been a source of great inconvenience, to say the least; and at times caused considerable pain, which always became worse if the bowels were at all constipated. There was also increasing difficulty in securing a good movement from the bowels and in keeping up the actions from day to day.

The condition of the abdomen, together with the supports, made it difficult for her to get-about on her feet; and without the supports it was impossible. Assuming the condition and symptoms at the time she was first seen to be largely uræmic, the patient was given a calomel-and-jalap purge and the following enema:

- Inspissated Ox-Gall... 2 oz.
- Glycerin 4 oz.
- Olive Oil..... 2 oz.
- Oil of Turpentine.....¼ oz.

Mix.—Sign:—One-half, to be used in a quart of soapsuds.

The enema relieved the rectum and colon, and the cathartic acted well. This was followed the next day by strychnine and mineral acids. In a few days all the grave symptoms disappeared and the patient regained a fair degree of health. By carefully regulating the diet, and the use of tonics and laxatives, good health was maintained for several months.

For nearly one year after the above-described attack, Mrs. C. succeeded in keeping herself unusually well; when, suddenly and without discernible cause, she was seized with symptoms similar to those already recorded. In this second occurrence of active symptoms, it was ascertained, the bowels had moved regularly each day, but not freely as before.

WITH THIS SECOND ATTACK,

there was developed a sharp pain in the right inguinal region, followed by nausea

and vomiting, a high-tension pulse; and, from this on, persistent constipation. The sharp and somewhat localized pain led at once to the suspicion of a strangulated hernia. The abdomen was carefully searched at every point, but no local evidence of a strangulated intestine or perityphlitic inflammation could be found.

The pain did not yield to simple local and internal remedial agents, but disappeared almost at once after the administration of one-sixth (1/6) of a grain of morphine, given hypodermically.

The same peculiar contour of the abdomen was noted, also the same succussion sound that was so prominent the year before. On repeated examinations, no fæcal impaction could be detected, and no strangulation or mechanical obstruction of the lumen of the intestine could be found, to account for the symptoms.

From the previously stated knowledge regarding this abdominal abnormality, and the general character of the symptoms,—this second attack, like the preceding, was diagnosticated and treated as a uræmic condition; especially as the urine was scanty and of low specific gravity, and contained albumin and casts.

The same cathartic remedies and the same kind of enema were used as in the preceding attack,—the enema bringing away a small amount of soft fæcal matter; but the cathartic did not produce any movement from the bowel. The vomiting continued; and the enema was resorted-to several times in succession,—first without and then with a rectal tube. After using the previous formula twice without effect, the following was substituted:

- Inspissated Ox-Gall.....¼ oz.
- Glycerin..... 4 oz.
- Saturated Solution of Magnesia Sulphate, 4 oz.

Mix.—Sign:—Add one-half to a quart of soapsuds and inject slowly.

But even this failed to bring away any fæcal matter. When either or both of these

enemas are carefully used without bringing away any solid matter or evidence of fæcal substance, it can be set down as a pretty uniform rule that

THE RECTUM AND COLON ARE EMPTY ;

or that an impermeable obstruction exists, which prevents the ascent of the injection-fluid as well as the descent of the intestinal contents from above.

Here the rectum and colon were empty, and this was proved by further events. All forms of cathartics failed to act, and no movement from the bowels could be established by any measure employed.

The vomiting continued. While it was not actually stercoraceous, it was clearly evident that most of the vomited matter came from the lumen of the alimentary tract below the pylorous.

The abdomen became more and more distended with gas. The diaphragm was driven up into the chest cavity, and the breathing was greatly impeded. On the fourth day it was evident to every one, and to the patient as well, that life could not long be maintained in that situation.

Several consultations were held with different physicians,—both medical and surgical specialists ; but it was impossible to arrive at any positive conclusion regarding the absolute

CAUSE OF THE NON-ACTION OF THE BOWEL.

That the uræmic element was a factor was clearly apparent. Some favored the theory of impaction above the sigmoid flexure, acting as a ball-valve ; others suggested a possible volvulus of the descending colon ; still others a greatly dilated stomach, causing intestinal compression and constipation ; etc.

While it was clearly apparent to all, both physicians and surgeons, that no movement of the bowels could be induced by medicinal agents, it was equally certain that a positive diagnosis could not be made by those most skilled in the art of diagnosing disease.

Left in the then present condition, the patient must die ; and as a

LAPAROTOMY OFFERED THE ONLY POSSIBLE CHANCE for relief, that method of procedure was concurred-in by all.

As the weight of opinion pointed toward fæcal impaction, or an obstruction in the descending colon from a volvulus, the abdomen was opened on the left side, directly over the lower third of the descending colon.

It was then found that the rectum and colon were perfectly empty. The large intestine contained neither fæcal matter nor gas, but was collapsed. This showed the correctness of the statement already affirmed, that when the foregoing enemas have been carefully employed, without result, it is pretty positive evidence that the large intestine is empty.

After ascertaining that the large intestine was collapsed, the hand was introduced into the peritoneal cavity ; when it was found that the stomach also was small, empty, and collapsed, as well as the colon.

A chief one, among the abnormalities that were found, was a

RUPTURE OF THE TRANSVERSE FASCIA AND MUSCLE, some three inches to the left of the median line and at a point about midway between the umbilical plane and the ligament of Fallopius. Through this opening the omentum and small intestine had protruded, followed by the formation of a hernial pouch between and in the substance of the muscles which constitute the abdominal parietes. Thus we have explained the peculiar conformation of the left side of the abdomen. This left hernial sac contained about one-third of the total length of the small intestine.

Further investigation revealed a similar rupture and formation of an intra-muscular ventral hernia in the right side, at about the locality corresponding to that in the left side of the abdominal wall. The hernial sac in the right side was fully twice the size of the hernia located in the left parietal wall.

The explanation for the peculiar contour

of the entire abdominal wall was now made clear.

THE RECTUS MUSCLE HAD NOT BECOME INVOLVED, but remained tightly stretched from sternum to pubis; while the double rupture in the transverse fascia and muscle on each side of the median line had permitted the intestine to leave the abdominal cavity proper and form two new cavities for its accommodation in the substance of the abdominal wall; thus causing the two well-defined abdominal protrusions, one on either side of the deep furrow running from above downward in the median line.

This escape of a portion of the abdominal contents had also caused a displacement of the *inner layer* of the abdominal wall *backward*,—thus contracting the size of the original abdominal cavity for the accommodation of the viscera.

As the contents of the right ventral hernia could not be drawn back into the original abdominal cavity by a hand inserted through the surgical opening made in the left side of the abdominal wall, a second opening was made over the most prominent part of the hernial protrusion on the right side. This was considered necessary, to make sure that no obstruction existed within the hernial pouch. It was proved conclusively by this second opening that no strangulation or mechanical obstruction, apart from the herniæ themselves, existed at any point along the line of the alimentary tract. It also showed that

THE MUSCULAR TISSUE OF THE INTESTINAL WALL
WAS PARALYZED,

and that the inability to secure a movement from the bowels was due to this absolute paralysis of the muscular substance of the intestine. Consequently it did not respond to any form of medication.

As the distention of the small intestines from gas was so great, and the diaphragm so forcibly crowded-up into the chest-cavity that it greatly embarrassed the respiratory

and cardiac action, the gut was punctured and the gas and some liquid matter withdrawn. This very greatly relieved the embarrassed respiration and made the breathing much easier, but it did not improve the paralyzed condition of the intestinal wall.

The operation in this case had not been undertaken until the sixth day after the attack commenced. At the time of the operation the patient was in a very low state; and naturally the only benefit derived was, to relieve the distressing dyspnœa, death ensuing some five hours after the operative procedure.

HOW TO EXPLAIN THE DEVELOPMENT OF THIS INTESTINAL PARALYSIS,

was the question. The long-continued malnutrition, associated with the tendency to chronic constipation, chronic Bright's disease, and the moderate uræmic condition, would in part explain its development; but its coming so suddenly, and when the bowels were moving fairly well each day, made *that cause alone* to seem a doubtful basis. The abnormal position of the intestine was also thought to have aided in producing the paralytic condition of the intestinal wall.

But it was not until after death that the probable exciting cause was discovered. Then, in talking the matter over, it was ascertained that, the day before the sudden onset of the pain, Mrs. C., in walking through the parlor, had caught her toe in a rug and was thrown forcibly forward and struck her abdomen against the floor. At the time, it gave her a good deal of pain in the abdominal protrusions; but in a few hours this passed off and she thought no more of it. In fact, the occurrence had attracted so little attention that it was only mentioned accidentally after her death. This injury, together with the intestinal displacement and the uræmic condition, was undoubtedly the exciting cause which led to the intestinal paralysis.

The symptoms in this attack appeared to

be more directly due to this torpidity of the intestinal canal than to the uræmic condition. The cause of death was the self-poisoning from decomposing substances—ptomainic in character—which could not be expelled from the intestinal canal by the natural method.

In conclusion, it may be said that this case is particularly interesting, on account of the doubleness of the ventral hernia; also, for its long duration, and for the extent to which the viscera had been displaced from their normal cavity. So far as could be ascertained, there is not another case similar to it recorded; in fact, in surgical works generally, the subject of ventral hernia is very briefly discussed.

THIS CASE SEEMS TO BE UNIQUE

in the injury being situated on both sides of the median line. It is generally stated that ventral herniæ are found in the linea alba or at the point of union of a previous abdominal incision. This case is also uncommon in the *form* of the lesion,—being not a lateral separation between the parallel fibres of a muscle, but an actual *rupture* of the transverse fascia and muscle.

IN REGARD TO DIAGNOSIS

it is interesting, in showing the great difficulty encountered in determining with certainty the true nature of pathological conditions extant within the abdominal cavity. It also illustrates quite positively that the rectum and colon can generally be regarded as empty, when the above-mentioned enemata have been thoroughly introduced into the lower bowel, without effect.

Another important point to be noted is THE NECESSITY FOR AN EXPLORATORY LAPAROTOMY in cases in which the question of diagnosis baffles all ordinary methods of examination. The frequency with which errors of diagnosis are illustrated in these abdominal cases in the dead-house, is quite sufficient proof upon which to demand an early exploratory incision. When this rule becomes more

generally adopted, fewer cases will go-on, as they now do,—undiagnosed until it is too late to restore them to a normal condition.

In reviewing the treatment in this case, the only thing that might be improved-upon is *the time* at which operative interference was instituted.

Had this been undertaken two or three days earlier, there is the bare possibility that temporary or permanent recovery might have ensued; although it is quite probable that, in the absence of any mechanical obstruction, and in the paralyzed condition of the muscular substance of the intestinal wall, nothing would have availed. Still, by ascertaining exactly what the true condition was, and drawing-off the accumulated gas in the small intestine, the incarcerated and paralytic condition of the small intestine *might* have been overcome, intestinal action re-established, and life spared.

The long-continued renal disease, the age of the patient, and all the other incidentals, however, stood against such a favorable result.

Delay in these severe cases is undoubtedly dangerous; while early and vigorous treatment, both medical and surgical, until every measure at hand has been exhausted, gives the best possible opportunity for recovery.

From the study of this case, together with many other obscure abdominal cases, the author is strongly convinced that the exploratory incision should be instituted much earlier than is commonly practiced.

PANUL (*Ligusticum Panul*, Berter) is described by A. C. ABRAHAM of the Pharmacological Society of London as a curious umbelliferous plant, the decoction of which is used to lessen or suppress phthisical night-sweats. It serves also in the treatment of cutaneous affections. In cases of cold in the head, warm water mixed with tincture of Panul is snuffed up.

THE USE OF ERGOT IN PNEUMONIA.

By GEORGE G. VAN SCHAICK, M.D.,

Instructor in Operative Surgery, NEW-YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL; Visiting Physician to the FRENCH HOSPITAL.

My attention was first directed to that which I have since learned to recognize as of great value—the action of Ergot in the treatment of Pneumonia, and more especially in its incipient or congestive stage—by a cogent article on this subject published some years ago in the *Medical Register* by Dr. J. E. KELLY of this city, who for a number of years has obtained much success from the drug in such conditions, as well as in cranial injuries.

It is strange that—possessing, as we do, an agent so powerful as Ergot in influencing the capillary circulation—we should have heard so little of its effects in the treatment of inflammatory visceral congestions. It would appear as if its general obstetrical employment had overshadowed its other uses to such an extent as to limit its administration to the lying-in room. Of course, it is also frequently prescribed in various visceral hæmorrhages, and daily renders noteworthy service in the treatment of congestive spinal and cerebral conditions; but, beyond its utilization in this narrow circle, we seldom hear of it.

The extensive recognition of its effects in checking pulmonary hæmorrhages and congestive states of the nervous system would *a priori* seem to indicate its employment in pulmonary congestion.

THE PHYSIOLOGICAL ACTION OF ERGOT may be rapidly rehearsed. The pulse, respiration, and temperature, are all lowered by large doses administered to animals. These facts, though generally admitted, have been doubted by certain observers, and I cannot but entertain the impression that the unreliability of many preparations may have been a factor in this divergence of opinion, and that the most recent studies tend to strengthen the proposition. Dr. KEATING, mentioned by RINGER, reported a case in

which pulse, respiration, and temperature, all fell after each hypodermic administration of ergotin. In a healthy condition, no such changes are usually to be appreciated after the exhibition of this drug in moderate doses. But in a patient suffering from acute congestion of the cord, the writer has observed, after a hypodermic injection of two grains of ergotin, a diminution of temperature, amounting to nearly a degree, with a lessening of ten beats of the pulse.

Ergot excites *tonic contraction* of all non-striated muscular fibres (BIDDLE), and of the striated but involuntary cardiac muscle. To this influence, as well as to that exerted upon the cardiac ganglia (BARTHOLOW), may be ascribed the marked sedative action on the heart which large doses commonly produce upon animals, especially upon cats and dogs. The drug appears to be a direct stimulant of the vaso-motor centres of the cord and medulla. NOTHNAGEL asserts that only the vessels of the uterus and bowels are contracted by it; that its value in hæmoptysis is due to a lowering of the general arterial pressure, and in intestinal and uterine hæmorrhage to the anæmia of these organs which it produces. Notwithstanding this statement, we know that arterial contraction after its administration can be seen with the ophthalmoscope in the retina and with the microscope in the web of the frog when under the influence of Ergot.

There has been a decided divergence in the opinion of writers with regard to the *blood-pressure*. Some observers have held it to be decidedly increased, among whom may be noted EBERTY, KÖHLER, and H. C. WOOD; while others, such as HOLMES, HERMANN, and WERNICH, maintain that it is actually reduced. It would seem reasonable to say that both statements can be reconciled, inasmuch as even an initial increase of pressure must be followed rapidly by a decrease, owing to the sedative effect produced on the heart, and to the diminished lumen of the arterioles. However that may be, the one

undoubted fact remains, of the production of arterial anæmia and diminished blood-supply,—facts of great therapeutic consequence; inasmuch as it probably is the production of artificial anæmia, together with the sedative effect on the brain, that renders the drug of great use in pulmonary inflammation.

With regard to

THE PATHOLOGY OF PNEUMONIA,

we may observe that the tendency of the bacterial infection which produces this disease is to cause, primarily, pulmonary congestion; with blood that manifests, under the microscope, a remarkable richness and density of the fibrin net-work (OSLER). When death occurs in the first and second stages, it usually proceeds from hyperæmia and consequent œdema (NIE-MEYER). Hence it appears that, as we are as yet without a means of counteracting the microbic element,

THE FIRST THERAPEUTICAL INDICATION

is, to diminish the influx of blood to the inflamed area. This may be accomplished (a) By lessening the total blood-pressure by general or local abstraction of blood; (b) By causing a derivation of blood to other parts; (c) By weakening the heart's action; and (d) By the production of local arterial and capillary contraction.

It is not my intention to discuss at length the merits of, or the indications for, these various methods. I will merely say in regard to the two first that phlebotomy and wet-cupping are limited in their employment to the very few patients who can afford to lose blood permanently, and that the derivation of blood to other parts can be accomplished only in an imperfect and temporary manner.

The third method is undoubtedly the most popular.

THE CARDIAC DEPRESSANTS

—chief among which are aconite and veratrum viride—have an accepted and well-recognized value in many cases of incipient

pneumonia. The writer, before he had treated a number of patients with Ergot, would have felt himself bereft of valuable auxiliaries had he been deprived of their use. *Now*, it appears to him that the beneficial effects of adequate doses of this remedy replace advantageously those produced by aconite and veratrum; while, at the same time, they produce the vascular manifestations already indicated.

There is, moreover, a certain proportion of cases of pneumonia, more especially among the aged, which are decidedly adynamic from the start, in which aconite and veratrum, if exhibited at all, must be used with the utmost caution, and in which Ergot, in my hands, has given good results.

THE CARDIAC STIMULANTS

(with especial reference to digitalis), have been also used frequently, and have their especial indications as such, but have not been considered as affecting, in moderate doses, the blood-pressure in the pulmonary tissue to any marked degree. I feel compelled to regard the large doses of digitalis, which by some have been recommended at the outset of the disease, as having acted by over-stimulation and consequently having caused a reactive weakness,—a mode of procedure which hardly seems to be a valuable one.

WYCISK in Germany, and YEOMANS in this country, both mentioned in Dr. Kelly's article, have spoken

IN FAVOR OF TREATMENT BY ERGOT.

Dr. J. T. WELLS, of California, in a letter to the *Medical Record* (Vol. 15, No. 17), states that "this remedy acts as promptly "in pneumonia as in hæmoptysis, whether "used hypodermically or *per os*, and in a "few hours arrests the 'rust,' by relieving "the intense congestion on which it depends." In ten cases quoted by Dr. Wells, the rusty sputa disappeared speedily and permanently, and the malady was aborted in half the cases; and in the other

the duration of the attack was shortened to six or seven days.

Dr. N. S. DAVIS in 1884 reported to the *Journal of the American Medical Association* the history of two cases of pneumonia in which Ergot proved of value.

In January and February 1891, Dr. J. C. HEMMETER published in the *Medical News* a series of valuable experiments upon the physiological action of Ergot; and in the next number of the same publication he reported two cases of pneumonia, giving a clinical chart of the pulse and temperature in one of the cases. In both patients the expectoration was profuse, thin, and contained an abundance of blood. They were treated by 15-minim doses of a preparation $2\frac{1}{2}$ times as strong as the fluid extract, and made rapid recoveries.

Dr. SUXOL, in the *London Medical Record*, states that in the congestive stage of pneumonia the administration of Ergot is followed by slower and easier breathing, fall of temperature, and freer and less profuse expectoration.

Here I will state that in nearly all the cases which I have treated I have used

ERGOTIN HYPODERMICALLY.

In one or two cases in which the ordinary *fluid extract* was employed, I failed to see the immediate response to the action of the drug which has become familiar to me since I have given ergotin hypodermically.

Having neglected to take notes of the first few cases I treated by ergotin, I cannot report them with accuracy, and can only say that I obtained favorable results from the very first. Most of the cases of pneumonia occurring in my hospital service were so far advanced in the stage of consolidation that they gave me no opportunities to employ Ergot. My private practice has offered me the greater number of observations of the influence of this treatment.

From both series, I have selected the four cases described below, of which I have

notes,—as showing a variety of conditions I may here state that, in a total of *fourteen* cases under observation from about the inception of the disease, I obtained *thirteen* recoveries.

—CASE I.—

(French Hospital.) J. S.; female, æt. 29, unmarried. Admitted June 7th, 1892. Patient complains of severe pain all over chest. She has had severe pain in left chest some months previously, which has disappeared before the present attack. The patient is much emaciated; pulse 135, respiration 40, temperature $103\frac{1}{2}$; looks nearly moribund.

Phys. Exam.—Left chest: Flatness on percussion from base to second interspace in axillary line, slight supra-clavicular dullness; absence of breathing, voice, and whisper; left interspaces bulging. Right chest: Slight dullness posteriorly from base to 7th rib. Dullness over apex anteriorly, crepitant râles over lower lobe, broncho-vesicular respiration over lower lobe.

Diagnosis.—Pleurisy with effusion on left side, intense congestion of right side with beginning consolidation at base, and tubercular deposit at both apices.

This patient was immediately given a hypodermic injection of a half a grain of ergotin, with a twentieth of a grain of sulphate of strychnia. Immediately the respirations became less in number and the pulse diminished fifteen beats. Ergotin was again administered, every two hours, until four grains had been given; when I saw the patient again. Drs. GONZALEZ and MEDINA, of the house-staff, observed an improvement after each injection.

The next day the left chest was tapped; but, as the patient felt very faint, only 14 ounces of clear serum were removed. After nine injections the ergotin was suspended, as the improvement seemed to continue spontaneously. The patient was fed with milk and whiskey.

June 9th.—Left chest was again tapped;

32 ounces of serum removed. No signs of congestion on the right side.

Subsequently the patient improved steadily, although the left pleural cavity refilled whenever she had been tapped. Finally the tubercular condition progressed rapidly, and the patient died early in August, during my absence from the city.

—CASE II.—

J. McB.; æt. 36, coachman. Caught a heavy cold while driving in the rain. Seen at my office, Nov. 27, 1891. Just had had a severe chill. Temperature 103, feels very ill, has a severe pain in the right side.

Phys. Exam.—Well nourished, strong man of florid complexion. Over middle lobe, right side, slight friction sounds; occasional crepitant, coarse, and sibilant râles; breathing rapid but vesicular.

The patient was sent home, where I saw him again within an hour. He coughed, and expectorated considerably, and a few of the sputa were tinged with blood. Pulse 138, breathing 38, temperature 104. Injected one grain of ergotin, and within ten minutes the respirations fell to 30, pulse 120, temperature unchanged. Patient felt easier. The injections were repeated at intervals of two hours, and after three injections the temperature went down to 102. On the next day consolidation was marked over a small area of the lower lobe. Prune-juice expectoration. Treated by tonics and milk diet thereafter. Returned to work in twelve days, without my consent.

—CASE III.—

(French Hospital.) A. F.; æt. 30, sailor, French. Admitted June 2, 1892, suffering with typhoid fever. Went on uneventfully enough, but for a rather high temperature that required frequent application of the ice-water coil.

Ten days after admission, at the beginning of the third week of the typhoid, he was observed to breathe with great difficulty, and the temperature rose from 103 to

105. On examination, crepitant râles at base of both lungs.

Ergotin in one-grain doses ordered, hypodermically, every two hours. After the lapse of twelve hours the patient was breathing easily and his temperature had fallen again to 103. After twenty-four hours the pulmonary symptoms had nearly entirely disappeared, and the patient progressed favorably, until he suddenly died from intestinal hæmorrhage in the fifth week.

—CASE IV.—

W. D. A.; æt. 67, merchant, U. S. I was summoned to see this patient at 9 P. M. on December 31st, 1891. Mr. A. had gone to business, as usual, in the morning, though not feeling very well. Was brought home at three o'clock in the afternoon in a carriage, having had two severe chills. He took some quinine and whiskey; but, as he complained of thoracic pain and rapid respiration, I was sent-for.

The patient was poorly nourished and apparently aged for his years. He had always been a rather free drinker. On my arrival he was slightly delirious; pulse 140, respiration 42, temperature 103½. Pain in right side severe. Right lower and middle lobes give a slightly dull percussion note; crepitant râles numerous, broncho-vesicular breathing.

I remained with the patient until the next morning, and administered half-grain injections of ergotin every half-hour, until four grains had been given. The pulse rapidly improved in strength, and became slower, and the respirations markedly easier. Next day the pneumonic process was localized to a very small area of the middle lobe, and by careful after-treatment, with stimulation, the patient finally recovered.

These four cases show

THE THERAPEUTIC EFFECTS OF ERGOT

in the first stage of pneumonia, or, at least, in the condition of well-marked pulmonary congestion. The only death which I observed *during* this mode of treatment was

that of a laundress, who suffered from a mitral systolic lesion, and in whom the effects of the drug were transitory.

The phenomena in my other cases were very similar to those I have recorded above, and consequently it is unnecessary to include them in this paper. Of course it is not expected that this treatment will give favorable results invariably; but the writer has collected sufficient data to induce him to persevere; and he hopes for records of further observations on the subject, from the experience of other physicians.

In conclusion, I will state that it appears to me, from the observations of others as well as from my own, that Ergot relieves the symptoms of pulmonary congestion more rapidly and more effectively than any other drug or therapeutic measure with which I am acquainted; that it may force a limitation of the area involved by the pneumonic process; that in some cases it may possibly arrest the progress of the disease; and that the remedy is always well tolerated in full doses, as described.

228 W. 34th St., NEW YORK CITY.

PSEUDARTHROSIS FOLLOWING FRACTURE OF THE CRURAL BONES IN A RICKETY INFANT.—RESECTION AND CURE.

By Prof. GR. ROMNICIANO, M.D.

Marin Jón, two years old, domiciled in the parish of Cârtojeni, was received for surgical treatment in the CHILDREN'S HOSPITAL, in Bucharest, the 22d of May, 1892.

ANAMNESIS.

When about 11 months old, this infant was one day put into the same bed with an elder brother (8 years old). The latter having accidentally stretched himself over it, the parents observed in withdrawing it from under the brother, that its leg was broken. A parish clergyman attempted to reduce the fracture and applied an immovable bandage of splints directly over the skin and extending only over the leg. The next day, how-

ever, he was obliged to remove the bandage, owing to the great tumefaction of the foot; he observed then that some phlyctæna appeared on the anterior surface of the leg, and that the skin was fiery red and very tense. Some weeks later, a woman practiced massage, and applied again an immovable bandage of pine splints; which was repeatedly removed and re-applied during the entire course of the winter, as the parents found that the mobility of the fracture persisted each time the bandage was removed.

The infant has four sisters and one brother, all physically well; the parents are both living and in good health. •

The infant has been suffering from intermittent fevers for quite some time.

PHYSICAL EXAMINATION.

Feeble constitution; flabby muscles; colorless tegument.

Head.—Circumference 50 centimetres [20 inches]; the frontal eminences are very developed and markedly prominent. The left parietal eminence is very large, so that the head seen from behind presents a perceptible asymmetry. The anterior fontanel is imperfectly ossified, and the coronal suture can easily be traced with the finger. The subcutaneous veins are dilated, and visible under the skin of the head as well as at the root of the nose.

Face.—The nose is flattened at the base, and the cheeks are covered with a long and abundant down. The incisor and canine teeth are irregularly set, the hard palate is deeply hollowed.

Thorax.—Contracted in the median region, and the sternum is prominent (like the thorax of a fowl); the chondro-costal articulations are prominent ("rachitic rosary").

Abdomen.—Markedly developed; the flanks are protuberant (frog-belly); the linea alba is slightly divided in one-fourth of its length; the superficial veins are visible. The spleen is large and sensitive to pressure. The liver likewise. The testicle is raised upwards into the

canal, which is closed; the left testicle is in its place.

The upper members.—Normal, with exception of the lower extremities of the ulna and the radius, which are somewhat enlarged.

The lower extremities.—The right leg forms an interiorly concave curve; which, taken together with the curvature of the thigh gives the limb a semblance of the letter S.

THE LEFT LEG

forms in the middle an angle of 160 degrees, with the apex forward.

The angle is formed by the fragments of the tibia, of which the upper part is more prominent and larger than the lower (as is observed in fractures in children after cicatrization); without, however, forming any considerable protuberance. Between these fragments is felt a small depression, which increases when this segment of the limb is deflected. At this point we can produce, with great facility, movements of extension, flexion and in a lateral direction; the flexion and adduction movements are more pronounced than the others. With these movements is felt a light friction, similar to that experienced in luxations. The tegument presents some rather marked cicatrices at the apex of the triangle, resulting, probably, from the phlyctæna observed the first time when the bandage was removed.

All the *passive movements* presented by this pseudarthrosis are also active (although less pronounced); for, when the infant is tickled, it executes the same movements.

STANDING ON THE FOOT

is impossible. In the attempt, the opening of the angle diminishes and its apex approaches the instep to within 3 centimetres [$1\frac{1}{8}$ inches]; while when the patient is in the dorsal decubitus the apex is at a distance of 4 centimetres [$1\frac{3}{8}$ inches] therefrom. A perpendicular dropped from the apex strikes the interdigital commissure,—so that the instep forms a curvature of 3 centimetres [$1\frac{1}{8}$ inches] in depth,—when the surface of the lower half of the leg

situated under the pseudarthrosis touches the back of the foot. When the leg is in this position the plantar curvature completely disappears, and the foot becomes flat. No pain is experienced on pressure or otherwise. The infant cannot in any way rest on the foot.

THE MEASURE OF THE INJURED LIMB

—from the umbilicus and from the antero-superior iliac spine—is one centimetre [$\frac{2}{8}$ inch] shorter than the other. The circumference at the level of the knee is one centimetre larger than that of the sound limb. It is smaller than the other limb by one centimetre at the upper part of the leg, and equal to the other at the lower part. At the angle of the pseudarthrosis the circumference of the fractured leg is a centimetre smaller than that of the uninjured leg at the corresponding place. The length of the back of the foot down to the extremity of the second toe is equal to that in the sound foot.

ADDITIONAL DESCRIPTIVE DETAILS.

The height of the child is 78 centimetres. The muscles respond pretty well to electric currents.

The patient presents, furthermore: 1,—A partial hypertrophic phimosis, with adhesion of the prepuce to the glans. 2,—Partial syndactylia of the second and third toes of both feet. 3,—A small umbilical hernia.

The child weighs 9 kilogrammes, and 900 grammes.

The urine, as examined by Dr. BERNARD, both before and after the operation, gave the following result:

“ Acid reaction.

Density 1.020.

Urea 27.55 parts per mille.

Fixed bodies together 46.6 do.

Uric acid *increased*.—(The uric acid exists also in the sediment of the urine.)

Phosphoric acid 1.3 parts per mille.

Urobilin, traces.

Indican, indol, and cresol, traces.

Hæmoglobin, trace.

Oxalate of calcium, abundant.

Vesical epithelium, traces.

Pus-globules, traces.

"—Acid, pathogenic diathesis; predisposing in the present case to the formation of oxalic concretions; which induce, as a consequence, a catarrh of the urinary passages.

"The hæmoglobin without red blood-corpuscles in the sediment of the urine indicates a degenerate hæmotosis. The indol indicates an abdominal catarrh. Other anomalies are not manifest."

THE CONDITION OF THE INJURED TIBIA.

May 28. After having carefully disinfecting the whole limb, I chloroformed the infant, and procured ischæmia by Esmarch's bandage. After that, I made on the anterior surface of the leg an incision 4 centimetres [$1\frac{2}{3}$ inches] long, the middle of which corresponded to the angle formed by the fragments. I cut the soft parts, layer by layer, down to the bone. Starting, then, from the initial point of the incision, I cut the soft parts also in a transverse direction and in this way formed two flaps which enabled me to operate with facility on the bone. Thereafter I loosened the thickened periosteum with Farabeuf's rasp.

The thickening was greater towards the point of fracture, where it formed a *real articular capsule*, firmly attached by a prolongation to the surface of the upper fragment but resting free on the lower piece, and thus solidly holding together the two fragments. The interior of this articular capsule was smooth and resembled the surface of a real synovial membrane.

THE UPPER FRAGMENT

was three times as big as the lower, on which it rode by its beak to an extent of 10 millimetres [$\frac{2}{3}$ inch]; it was more enlarged at the lower part, but the enlargement existed only at the anterior face, where it presented no inequality of surface. It had the form of a beaked-flute mouthpiece, and its obliquity ran from above downward and from behind forward. Its interfragmentary face was covered (to a thickness of 10 millimetres [$\frac{2}{3}$ inch]) with a cartilaginous layer, which in front extended somewhat over the super-

ficies of the bone, slightly to the right of the flute-piece.

THE LOWER FRAGMENT

was depressed behind the upper fragment, which rode upon it. It was very slender, almost as one of the phalanges of an adult, and slightly oblique from below upwards and from the front backwards, consequently in a parallel direction to the terminal obliquity of the upper fragment; so that, upon replacing the tibia, the two fragments corresponded to each other, without, however, establishing any perfect contact. This fragment was covered on three-fourths of its anterior surface—and even over the fractural surface, that is, *under the beak* of the upper fragment—with a layer of cartilage 8 millimetres [$\frac{1}{3}$ inch] thick.

The interfragmentary surfaces of both fragments were very clean. The two fragments were united behind by a thin osseous bridge, which impeded the execution of complete flexion-movements of this pseudarthrosis, and likewise obstructed the full extension of the leg. The space between the two fragments at the moment of forced flexion of the pseudarthrosis was 1 centimetre [$\frac{2}{3}$ inch].

THE OPERATION.

After I had with great care divided the posterior osseous bridge by means of the saw, I cut off 1 centimetre [$\frac{2}{3}$ inch] of the upper fragment; and then, having removed also a part of its superabundant crest by means of Liston's forceps, I cut off 8 millimetres [$\frac{1}{3}$ inch] of the lower fragment,—that is, the whole cartilaginous covering.

This

RESECTION

enabled me to restore the normal straightness to the leg by completely removing, also, the projection formed by the superposition of the fragments and by the exuberance of the upper fragment. The two fragments corresponded exactly with each other and left no space between them; except that the upper fragment, being much thicker, exceeds the lower in circumference.

The fragments having been brought into contact, I attempted to make an

OSSEOUS SUTURE;

which I, however, found to be impossible; for, despite the great precaution with which I introduced the perforator, the upper fragment—whose osseous tissue was even much stronger than the lower one—broke with the greatest facility, without giving the least sound. I contented myself with touching the fragments and the wound with a 5-per-cent phenol solution and replacing the fragments into contact; after I had first removed the constricting tube of the Esmarch bandage, in order to convince myself that no vessel, however small, was injured.

Finally I made the

FLESH SUTURE,

in three layers, by passing at first through the soft parts three silk-threads, which I fixed with the pincers according to L. Char. ponnière's method.

Thereafter I sewed longitudinally by 6 stitches of catgut, and transversely by 4, the periosteal flap to the contiguous fibrous parts and to the aponeurosis, with which they were intimately united. The muscles I fixed by 6 stitches of catgut, and the lips of the muscular wound were fixed to the skin by 7 stitches of silk. After that I detached the pincers retaining the threads by which I had maintained all the soft parts in position, and tightened the threads slightly and made a triple knot.

THE MODE

of operation which is necessary for the reunion of wounds in children, being accompanied by great tumefaction; and the too tight constriction of the lips of wounds in children not only interfering with their reunion by prime intention but often producing even a separation of their weak tissues,—I was induced—considering also that the child was feeble—not to tighten too much those threads; so as to leave sufficient leeway for inflammatory tumefaction if such should supervene.

TO MAINTAIN THE FRAGMENTS

and the limb in a normal position, I fixed the leg with a strip of gauze moistened in a 5-per-cent phenol solution, and passed in *échelon* form under the sole of the foot. With another strip applied to the posterior face of the leg and to the toes and extending up to the knee, I rendered the foot immovable,—flexing it towards the leg.

THE OUTER DRESSING OF THE LEG

was formed first with 3 pieces of phenolized gauze and a thick layer of wadding, inclosing also the foot; which I maintained in position by a spiral bandage,—flexing the foot still more firmly towards the leg. I then applied two pasteboard splints, to the outer and inner side respectively; and to the posterior face a third splint embracing the sole of the foot, all of which I covered with wadding and maintained by a spiral bandage.

THE FIBULA,

which presented a pseudarthrosis seated somewhat higher than that of the tibia, I had previously repositioned with great ease. In it the two fragments formed an angle whose apex was directed inward; this angle opened up in movements of adduction, during which the entire bone closely approached the tibia, from which the fibula was otherwise wholly disconnected. The fear that the traumatism might prove too severe, and particularly the fear of a hæmorrhage, had persuaded me *not to attack* the pseudarthrosis of the tibia, as the child was feeble and malarious.

After the operation, which lasted 45 minutes, and during which I employed 9 grammes of chloroform, I placed the child into a Bonnet's crib.

It promptly came to; this was followed by vomiting and by manifestations of pain in the operated part until night.

SEQUELÆ.

The temperature taken morning and evening and controlled by 3 different thermome-

ters was normal during 6 days following the operation.

June 3. (SIXTH DAY; FIRST RE-DRESSING.)—The child appearing to be agitated, I removed the dressing and noted the following facts: The pieces of the old dressing are slightly stained with blood. The lips of the wound are re-united. The threads which hold the totality of the soft parts are tense and press slightly on the skin; where the central thread has produced a slight furrow. The color of the skin is normal, but the tegument is swollen and presents a manifest fluctuation along the entire extent of the wound. I removed the deep threads, opened the three lower stitches, and separated the re-united edges of the skin; which yielded a small quantity of thick yellow pus. I applied a drain and washed with a 5-per-cent solution of phenol.

The abnormal mobility is not very marked.

The form of the leg presents no difference to the sound limb, except that it is tumefied.

I now sprinkled the wound with salol and again applied the dressing, after removing one thread of catgut from the lower part of the wound.

June 7.—Fearing that the drain might facilitate the formation of a fistula, or become an impediment to the consolidation of the bone, I made a *new re-dressing* four days after the first.

There is almost no suppuration, the tumefaction of the soft parts is slight, and consolidation of the fragments has begun, as may be inferred from the very restricted mobility.

June 11. (Four days after the second dressing.)—There remains but very little suppuration; the mobility is limited and exists only laterally; while flexion and extension at the point of fracture have now become impossible.

June 18.—No suppuration. The wound is almost completely healed, and there remains but a small furrow; there is no tumefaction;

the mobility has entirely disappeared; the callus is slightly exuberant.

—*At the fifth re-dressing*, the wound is completely healed; no abnormal mobility exists; the callus is exuberant in front, and the infant can voluntarily move the leg.

—Still a week later, the infant could stand on the leg; and there likewise existed no abnormal mobility at the seat of the pseudarthrosis.

GENERAL OBSERVATIONS.

PSEUDARTHROSES ARE PRETTY RARE

accidents generally. Thus we find that LISTON in his practice met with but one case, and PEARSON among 367 fractures observed only a single pseudarthrosis, while NORRIS in an aggregate of 1247 fractures noted 16 pseudarthroses.

Their rarity is so great that WALTHER of Oxford cites 7–8 cases among 1000 fractures; LANDAU 6 among 4000; and PAUL 16 among 6995. HAMILTON, in his statistic résumé, records an average of 2 pseudarthroses among 1000 fractures.

If pseudarthroses occur so rarely at other periods of life, it is easy to understand why they constitute

AN EXCEPTION IN THE FRACTURES OF CHILDREN, in whom, thanks to their great vitality, fractures not only consolidate more rapidly (9–10 days in bones of the upper limbs, and 16–25 days in the lower limbs), but in which the callus is more voluminous and often exuberant. This tendency to exuberance and largeness disappears rapidly with advancing years.

In children,

CONSOLIDATION ALWAYS TAKES PLACE,

although more slowly than in adults,—even when the fractures occur in tuberculous individuals.

The rarity of pseudarthrosis in children accounts to me for the fact that but two cases have come under my observation during the 17 years the surgical hospital for children here has been under my direction.

In one of these cases, the pseudarthrosis had existed for two years; the child was well developed and presented no trace of rachitism. Although I have observed only two cases of pseudarthrosis,—yet, among 250 cases of fractures, we have treated children that were tuberculous, enfeebled by malarious fevers, rickety (a single case), or suffering from fractures complicated with wounds and luxations, or multiple fractures in the course of which scarlatina, roseola, variola, or pneumonia broke out.

In cases where infectious diseases broke out in the course of the treatment of a fracture,—sometimes even two or three days after the occurrence of the fracture,—I observed but

A RETARDATION IN THE CONSOLIDATION

(29 days in a fracture of the clavicle, followed by scarlatina; 39 days in a fracture of the femur, with intercurrent variola; 131 days in a *double fracture* of the femur, with superposition of the fragments at both points of the fracture, and complicated with a wound extending to the focus of the fracture, and with traumatic arthritis which rendered arthrotomy necessary. This fracture was followed by a *total necrosis* of the portion of the bone situated between the two fractures, and which it was necessary to extract; the sequestrum measured 18 centimetres. The child recovered, with a shortening of the limb, of 1 centimetre [$\frac{2}{5}$ inch], and with a slight stiffness in the knee articulation. [The focus of one fracture was situated in the upper third, and the other in the lower third of the length of the femur; the articulation of the knee contained a large quantity of blood.]

Once only I observed the

NON-CONSOLIDATION

of a fracture in children. The fracture was in the upper third of the right femur, in a child suffering from a coxo-tuberculosis with softening and associated with numerous fistulous tracts. The debility of the child was extreme, and the fracture occurred while it

turned about in the bed; the fracture did not consolidate during the 60 days it still continued to live. The fistulæ prevented proper retention of the fragments.

At the autopsy I found no sign of callus, and the fragments along their whole extent were so soft that they could be cut with the scalpel. The areolæ of the spongy tissue were enormously enlarged and full of red marrow.

It is true that I have treated a few cases where the fractures

CONSOLIDATED MORE SLOWLY,

in weak children; or where the radius became consolidated, but not the cubitus (in a fracture of the bones of the fore-arm at the median part.)

Other times again (for instance in a fracture at the middle of the bones of the fore-arm), I did not obtain the consolidation before the end of 30 days. In such cases the application of a new bandage when the first was found too large—or its removal when too tightly applied—and the use of massage combined with tonics, proved successful; so as to rapidly effect the retarded consolidation,—within the total of 10–20 days.

IT IS A NOTEWORTHY POINT

that, among 250 fractures, we have had 2 pseudarthroses—a fact which—compared against the figures above quoted—might seem to imply that such accidents are more frequent in children and particularly among our population.

But such a view can not be sustained, for the following reasons. The small number of fractures observed at our hospital during 17 years is barely $\frac{1}{6}$ —proportionally—of the number treated in children's hospitals abroad.—Why? Because the greater number of fractures with us are treated by female quacks in the provincial towns, or by gratuitous consultation.

In connection with the treatment of

THE CASE IN HAND,

I wish to add the following observations:

1.—The facility with which the fracture took place is characteristic. The pressure exercised by the brother (8 years old) was evidently not sufficient to occasion the fracture; as this amount of pressure could suffice only to straighten the curvature of the tibia distorted by rachitis. In the present case it seems that the fracture was caused by the parents, who, grasping the leg, bent it abruptly and with force, in their fear that the infant had been suffocated by the brother;—thus producing too great a flexion of the leg, which resulted in the fracture of the bones. I maintain that the flexion of the leg must have been performed with great force; for,—although I have seen a large number of rickety children in which the osseous deformities were enormous, and many of whom had to bear, therefore, severe operations—yet I have met with *but a single case of fracture in rachitics*. Why? Because their bones bend easily and therefore escape fracture; and because, to produce a fracture, the flexion must not only be abrupt, but very forcible, and, indeed, more forcible than in non-rachitic children.

2.—The fracture must have been complete from the beginning, and the posterior osseous bridge is the result of the osseous cicatrization; for the following reasons:

a.—The angle arising from the overriding of the fragments, and the abnormal mobility, were alone the two signs which could have drawn the attention of the parents to the existence of the fracture. The fibula must have been broken either at the same time as the tibia, or shortly afterwards, when the parents, wishing to ascertain whether the bones were fractured, placed the infant on its feet; it was, then, at that moment that the fibula, unable to support the weight of the body, also gave way.

b.—The fracture of the tibia being oblique, it is probable that it was occasioned by the flexion of the bone—precisely as with a twig of a tree bent over the knee;—thus producing an oblique break, dentated behind.

This circumstance must have facilitated the formation of the osseous bridge which I observed at the posterior part, where the fragments were more proximate and maintained in contact by the backward deviation of the lower fragment, as well as *by the periosteum*, which in this part—if we admit that the fracture was produced by the bending of the tibia—could remain intact.

c.—The fibula, which was fractured higher up than the tibia, served but as a sort of posterior splint to the fragments of the tibia,—facilitating their abeyance in contact at their posterior parts, where they were most dentated.

d.—The fracture of the tibia being denticulated behind, the denticulations of the two fragments approached each other, either by the infant's standing on the foot, as tried by the parents at different periods; or when the mother carried the infant in her arms, holding it up by the buttocks.

The mutual pressure of the fragments, by irritating the bone or maintaining the fragments in contact at this point, facilitated the consolidation of the bones there; thus producing *the osseous bridge* which united the fragments behind.

As to

THE CAUSES OF THIS PSEUDARTHROSIS,

I believe that it is due to several factors, namely:

A.—The separation of the fractural surfaces, occasioned by the extent of the overriding of the fragments.

B.—The absence of external containment, and the numberless attempts made to ascertain whether consolidation had taken place.

C.—The very violent inflammation, resulting from the too constricted bandagings applied by the parents; which afterwards retarded the nutrition of the limb.

The *paludism*, while exerting a debilitating effect on the infant, which was poorly nourished, retarded only the cicatrization of the bone. The *rachitis* did not play any important part; since the consolidation of

fractures takes place, although very slowly, in rachitics ; while in the present case, owing to other determining factors, we had a pseudarthrosis.

In proof of this view we may instance this very infant in which, although the operation left an open fracture with consequent suppuration, the consolidation of the fracture nevertheless took place quite rapidly ; —the injury being completely healed in 29 days, and that mainly because we abolished the mobility and the imperfect contact, which were the chief factors of the pseudarthrosis.

RACHITISM

cannot in the present case be considered as the principal cause of the pseudarthrosis ; because, if that were so, the fragments would not have been soldered behind by an osseous bridge,—that is, in the spot where permanent contact of the fragments could establish itself, thanks to the denticulations, and especially because of the backward and upward determination of the lower fragment.

In proof that rachitism was not the chief cause, I may adduce

ANOTHER CASE OF PSEUDARTHROSIS

observed by me, which occupied the lower third of the leg, and in which the fragments had formed an angle analogous to that in the present case. This pseudarthrosis occurred in an infant not at all rachitic nor malarious, and to which no apparatus of retention had been applied. (No operation was made because of the opposition of the parents.)

3. In this connection we may also mention

THE GREAT DISPROPORTION

observed in the circumference of the upper fragment in the case first described, as compared with the slenderness of the lower fragment. This disproportion is due to the more direct access of nutrition to the upper fragment, which, in consequence, was enabled to follow its natural development,

and even to exceed it at the lower extremity, where it was lengthened and enlarged.

Might not perhaps *the increase in length* of the upper fragment towards the flute-beak, where it reached beyond the lower fragment have been due to excessive irritation of the upper cartilaginous conjugation, consequent on the fracture? I am inclined to think so.

BUCHAREST, Roumania.

EUCALYPTUS TINCTURE (from fresh leaves) is employed in *putrid bronchitis*, by Dr. BUCQUOY, of Paris, in doses of 2 grammes [$\frac{1}{2}$ fl. dr.] a day, taken in a gummous mixture. He claims to have obtained a cure in five cases.

SODIUM THIO-SULPHATE is prescribed by Dr. LANCEREAUX in cases of *putrid bronchitis*, in daily doses of 4 grammes [1 dr.], in a julep. The symptoms improve, it is reported, after six days.

PHENOL INHALATIONS are recommended by Dr. C. PAUL in *fætid bronchitis*. At the same time, he vaporizes carbolic acid in the sick-chamber.

MARRIAGE is legally *permitted* in France, Belgium, and Italy, at the age of 18, in the case of males, and at 15 in the case of females ; in Spain and Portugal, males at 14 and females at 12 ; and in Switzerland, according to the cantons, at 14 to 20, in the case of males, and at 12 to 17, in the case of females.

It is wrong, according to the late Dr. DEMME (of Berne), not to believe in the disastrous consequences of the presence of ASCARIDES LUMBRICOIDES in the digestive tract of children. They may provoke *pernicious anæmia* which sometimes ends fatally. Purgatives for the expulsion of the Ascarides, followed by appropriate anthelmintics, have proved themselves efficient means in promptly averting accidents.

MEDICINE ABROAD;

AS REPORTED BY OUR FOREIGN STAFF

European Editor: H. BAILLON, M.D.,

Professor in the "Faculté de Médecine de Paris"; President of the "Société Linnéenne de Paris"; formerly Professor of Hygiene at the "École Centrale des Arts et Manufactures"; etc., etc.

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LESSONS OF THE LATE EPIDEMIC.

It is very natural that, in France, the medical world is giving its chief attention to Cholera: the present interest in it is indubitable. Professor PETER, who has already insisted on the essential *identity* of the various choleraic affections, has now returned to the subject at the ACADEMY OF MEDICINE; and the most prominent feature of his communication was, that—concerning the therapeutics of this affection, as of all others—physicians are divided into two camps, which may be described, as was done by the *Actualité Médicale*, in two words:

CLINICAL MEDICINE AND THE MEDICINE OF THE LABORATORY.

That journal truly says that there exist in this country *two very distinct schools*: the one representing the healthy and powerful traditions which have constituted the honor and glory of the ancient Paris School, which are the outcome of the clinical observation of facts. That school does not believe itself obliged to have recourse to the microscope in order to confirm a diagnosis and to formulate a treatment. The other school—"tinged with germanism"—is forever seeking, magnifying, and finding the insignificant,—having substituted the microscope for the stethoscope, and the hunt of microbes for therapeutics. The chiefs of the one camp are distinguished as LAENNEC, TROUSSEAU, BOUILLAUD, and ANDRAL; those of the other as PASTEUR, KOCH, and LISTER.

The two rival schools have confronted

each other during several recent years; and if the last-named has shone for some time past with incomparable brilliancy, it may be said to be now entering on its decline, and Reason is once more resuming her sway. It is now six months since medical *Practitioners* have recognized the presence of Cholera here; the *Laboratory* doctors are still discussing in order to determine "what is the Cholera-Bacillus," and whether it be present in the rice-water dejections of the victims of the epidemic!

This is very nearly what we predicted six months ago, in another form; and many doctors on each side of the Atlantic probably recognize this discrepancy, although it may not always suit them to say so.

But let us return to the practical side of the question, that is to say to the treatment, which is indeed important to the patient; and it is to be noted that that which Professor Peter proposes is evenly mixed, since he combines the processes which may be designated ancient, with those to which Dr. CHAPMAN has recently called the attention of the medical world.

Thus, Peter recommends the treatment of the *premonitory diarrhœa* by opiates. Then, in the more *advanced stage* of the disease, he advises the application of a spinal ice-bag along the vertebral column, "in order to prevent the medulla reflex actions, and consequently to put an end to the cramps." Then he combats the *algidity* and the *collapse* by frictions, by hypodermic injections of ether and caffeine, and by mustard baths. Finally, he *stimulates the forces* of the patient by hot alcoholic drinks. From a practical point of view, nothing is more rational.

In respect to doctrine, Professor Peter, who flatters himself on belonging to the former of the schools above mentioned, approaches the

QUESTION OF CONTAGIOUSNESS.

And he gives this remarkable solution of it :—There is an *absolute* and a *relative* contagiousness ; and it is precisely those diseases, the microbes of which we do *not* know,—small-pox, scarlatina, and measles,—which are the most contagious. As to Cholera, its contagiousness is but relative ; and this is a fact which cannot be too often repeated, in presence of the fear inspired by the Cholera microbe, not only abroad, but still more in France. In respect to prognosis,—whatever may be the different forms of the affection considered fundamentally as *identical*,—the mortality has, naturally, been in proportion to the intensity of their symptoms and to the degree of atmospheric heat.

But that which ought to cause every physician who is not committed to one side, to reflect, consists in

THE BACTERIOLOGICAL RESULTS :

Out of 24 cases, there have been 3 cases of *Comma-Bacillus* of Koch ; 9 cases of the pure *Bacillus Coli* ; 1 of a *Bacillus* like to that of FINKLER and PRIOR ; 6 of that *Bacillus allied* to the *Comma-Bacillus* ; 1 of a *Diplococcus* ; 4 of a *Comma-Bacillus allied* to the *Bacillus Coli*. And each time animals were experimented-upon with the last-named, they died at the end of 1, 2, or 3, days, with diarrhœal dejections, retention of urine, coldness, and sometimes paralysis. All this will, no doubt, astonish the reader who recalls the microbiatric formula, that “germs of different nature cannot originate the same product.”

However learned the Physiologists, Chemists, and Mathematicians may be, who, with like formulas, have pretended in our day to dominate medicine, they would have done well, it seems to us, to acquire in the first instance some notions of Clinical

Medicine. But at the present time, as indeed at all times,

EVERYBODY WOULD FAIN BE A DOCTOR ;

and, indeed, even to-day, the amusing history of the poor fool of that Italian Prince, who gained his bet when pretending that the medical profession was of all professions the most-widely-spread among men, has its application :—“The Buffoon went to the Court, having on his head a compress, bandaged-on. The Gate-Keeper of the Palace condoled with him and offered him an excellent remedy. Then came all the Lords and Ladies of the Court, who pitied the poor Fool, and also favored him with a little consultation. At last came the Grand-Duke : ‘Who, my poor friend, has brought you into this sad plight? You must take great care of yourself, and listen what, in this unfortunate situation, I advise you to do.’—‘And you, yourself, my Lord, behold yourself taken in the act of a Medical Consultation, like all your Court, your Servants, and Courtesans,’ said the Fool, whilst taking off his compresses. ‘You are a Doctor, like all the rest, and you will pay the price of the bet.’”

As said in “Sagesse des Nations,”—“It is a long way from the mouth to the heart”—so, unhappily, there is a great distance between general precepts of

THE PROPHYLAXIS OF CONTAGIOUS DISEASES, and that absolute practical prophylaxis which will realize the ideal. This statement receives new proof from the late epidemic of Cholera, of which all the medical world of Europe is talking. It is necessary, in the first instance, to have a clear understanding of the value of the word “contagious,” applied to Cholera ; and we shall see shortly what restrictions certain doctors wish to apply to this expression.

In France it is, as above intimated, Professor Peter who was the first to admit the identity, the unity, of all these *polymorphic*

affections to which administrative wisdom is unwilling that the name of "Cholera" be officially given. He has recurred to this subject with his indisputable authority. He is not the man to mince matters when addressing the powers that be. He runs almost a sure risk of *never* becoming a member of the ACADEMY OF SCIENCES. But he is the man to console himself for the loss; and I venture to believe that he will easily do so. What he has recently said afresh, is—summarily stated—that

BACILLARY SPECIFICITY HAS HAD ITS DAY; and that he believes the fact to be demonstrated, as much by clinical data as by experimental facts borrowed from bacteriology, that in infectious diseases generally, and in Cholera particularly, *bacilli are but secondary agents*. This opinion is, undoubtedly, not new; but he has effectually made its proof, if, as he claims, he has demonstrated how the same morbid germ may be encountered in three different diseases, and how also three different germs may be found in the same disease.

For example, he points out that the *Bacterium Coli* has been met-with, by the most competent bacteriologists, in Cholera, as well as in Dysentery, and also in Typhoid Fever. Moreover, on the other hand, sometimes the *Bacterium Coli*, sometimes the *Bacillus* of Finkler and Prior, and finally sometimes the *Bacillus* of Koch have been observed in *one* of these affections. These are facts which Peter does not invent, and which, in his opinion, invalidate, in a remarkable manner, the doctrine of the morbid specificity of germs and bacilli.

We must, therefore, freely admit that, in all this, the living human organism plays its part, that *it is we who endow our bacilli with their maleficent properties*, and that they become pathogenic only by delegation. We do not know if physicians generally will adopt this method of viewing the subject; but we know that, since about three years ago, its adherents have maintained (GILBERT

and GIRODE) that the *Bacterium Coli* becomes transformed into the Cholera-Bacillus after it has been some time in the digestive tube of a cholera patient. If animals are then inoculated with such a modified *Bacterium Coli*, they succumb with thoroughly *choleraic* symptoms. This *Bacterium Coli* will have become, therefore, *choleraic* in its nature.

It is remembered what a noise was first made by the assertion of the two bacteriologic specialists, Roux and RODER, that the *Bacterium Coli* was capable of becoming "*Eberthiform*," or rather that the *Bacillus* of Eberth, that is to say, that of Typhoid Fever, was only a modification of the *Bacterium Coli*. They now admit that, by a process still unknown, the typhoidic organism can impart to the *Bacterium Coli* the characters of the *Bacillus* of Eberth.

Peter considers these facts as arising simply by morbid spontaneity; and thus, from his point of view,

CHOLERA BECOMES SPONTANEOUS AND AUTOCHTHONE,

alike in Europe as it is in the marshes of India. Also, he says, there is a simultaneous apparition of the disease at very different points of the globe.

To this doctrine Peter adheres, notwithstanding all the objections which have been made to it; notwithstanding the absence of demonstration which has been urged against it. And the consequence drawn from it is this (of which, be it understood, its author has all the responsibility):

Between Infantile Cholera and Indian Cholera there is quite an intermediary connecting series. (This idea had been already expressed by the celebrated clinician Trousseau.) It is generally admitted, clinically, that Infantile Cholera originates spontaneously; and, according to Peter, Cholera likewise is *nothing but a poisoning by toxic alkaloids generated in our digestive tube*. Thus,

THE CHOLERAIC IS A POISONED PERSON, and the poison of Cholera is comparable in certain respects to tartar emetic. We manufacture toxics, we make autochthone poisons in our systems; and these poisons poison also our native microbes, which,—from being the poisoned—soon become, in their turn, poisoners, proceeding to spread elsewhere their evil effects.

The contagiousness of Cholera is not contested. But in Peter's opinion it is, as before stated, a relative contagiousness; and in order to let it become effective, certain predispositions and a prolonged contact are necessary. Who then is struck, really, in the actual epidemic? Under this theory it is only those who, as we can foresee, are likely to be struck: it is those who are predisposed to misery, dirtiness, and intemperance; it is the aged and the cachectic, having no vital resistance. It is especially alcoholics, people exhausted by excesses. The rich centres of the city are generally spared. The disease ravages the outermost suburbs, in which almost everything, from the hygienic point of view, is lacking; in which river water, often contaminated to a deplorable extent, is made-use-of.

In those instances of Cholera which may be considered absolutely sporadic, and outside of epidemic epochs, the same phenomena are generally observable. In one of the Paris hospitals, where

SPORADIC CASES

present themselves most frequently in consequence of the neighborhood of a suburb inhabited by workmen and far from healthy even at present, and still much less healthy at the period—thirty years ago—of which we speak, the history of the wretched victims of Sporadic Cholera was almost always the same. They had drunk; in a season generally very hot they were in the habit of lying in a field or close to a ditch. The diarrhœa from which they had often suffered previously was increased; they were seized with vomiting, and cramps, and became

cold; they arrived at the hospital more or less algid or cyanosed: they had Cholera.

On the west side of France, this year, and at Havre, where the disease has been intense, the people struck were for the most part those living under the worst conditions. At Rouen it was the miserable prisoners who were especially attacked. At Bonneval, during that singular epidemic of which we have already spoken, it was generally the insane, the enfeebled, and the paralytic, who became the victims. And it has been the same with respect to all the invaded localities; we shall see more examples of it.

All physicians know that there are DISEASES MUCH MORE CONTAGIOUS THAN CHOLERA,—Small-pox, Scarlatina, Influenza, for example. For them, the individual conditions just referred-to are much less necessary. The most active agents of Cholera-transmission are the dejections, or the linen saturated by these dejections; and it may be remarked, in connection herewith, that laundresses are more frequently attacked than other people. The systemic poison, generated in us, described since 1884 by BOUCHARD in the fæces and in the urine of choleraics, may, therefore, be communicated from one individual to another; but this communication is not easy, it needs a special predisposition of the individual infected; and it is on this account that in many epidemics the medical public is relatively seldom attacked.

It is not illogical to admit that, from the point of view of

EPIDEMICITY,

there is the same difference between Epidemic Cholera and Sporadic Cholera as there is between epidemic dysentery and sporadic dysentery. Epidemicity, which is due to modifications of the surrounding medium, according to all appearance impresses on all diseases, which before were only endemic, a character of intensity and gravity which suddenly astonishes and alarms, often confounding prevision and

reason. Such was, but two years ago, the epidemic of Influenza,—so disastrous when compared with our ordinary sporadic Influenza. It is by like circumstances that a *non-contagious disease becomes contagious*, and that a disease which was barely contagious becomes intensely so.

In short, and according to recent data which we think will interest readers at a time when Cholera penetrates everywhere, “a choleraic is a poisoned person”; *he is poisoned by his own secreted products*,—ptomaines, leucomaines, or analogous substances: with which the chemists, sooner or later, will make us thoroughly acquainted. These substances are produced in the digestive tube. They poison the individual, and likewise his *Bacterium Coli*, or vegetable analogues; and these—whether remaining as they were, or more or less modified by the medium in which they are poisoned—become diffusers of the choleraic poison, and thus poison other individuals. It is the individual spontaneity or idiosyncrasy which individualizes the choleraic affection, and which nevertheless so operates as to exhibit

AN IDENTITY OF CAUSE AND A VARIETY IN THE PRODUCTS.

One patient originates Cholera, another Cholera Nostras, and yet another Asiatic Cholera!

And it is especially this remarkable conclusion of Peter which we point-out for the reader to meditate-on:

“Respecting bacteriologic forms, facts seem to me to demonstrate that *the Comma-Bacillus may be evolved from the Bacterium Coli*; as, in diphtheria, the Bacillus of Klebs is an evolution from the Bacillus of Loeffler; as, in Enteric Fever, the Bacillus of Eberth is an evolution of the Bacterium Coli. . . . This is a heresy; but the heresy of to-day may well become the truth of to-morrow, . . . and I will say: the study of the ætiology of Cholera reveals to us (special atmospheric conditions being given) the preponderat-

ing rôle of misery and the neglect of hygiene in the genesis of this affection: hence, this social and individual conclusion: ‘*Less Misery and more Hygiene!*’”

Certainly, if an *effective hygiene* were not the best preservative against Cholera, the doctors who are surrounded by cholera patients would be much oftener attacked. It appears to me moreover that that which often saves them is the fact that they have

NO FEAR OF THE DISEASE.

They do not think that they can be attacked by it, and I do not believe that I am going too far in saying that *fear induces diarrhœa* in many people in whom, with some predisposition doubtless, diarrhœa is the precursor of the choleraic affection.

Moreover, this affection is one of those in which it is most difficult to apply the rules of prophylaxis which we have established above; for our ignorance of the moment, when the disease begins to cease to be localized and to become general, is profound. If, as is thought by so many people, the microbe is the cause of the choleraic affection, there must be a moment when the sufferer from diarrhœa is not yet infested by microbes, and a moment when he begins to have them in his digestive tube. Is the limit between the period of the localized affection and that of the general affection the moment when a *Bacterium Coli* transforms itself into a *Comma-Bacillus*? Let us confess that we know nothing about it.

But, meanwhile,

UNTIL WE DO KNOW,

let us *cleanse* our cities, let us *cleanse* our rivers; let us struggle zealously with that physiological misery which is so cruel to poor people and which places them at the mercy of every violent epidemic!

“SUFFED-BAHMAN” is a powerful *aphrodisiac*, recommended by Arabian doctors. It is said to be the root of *Centaurea Behen*, L., a common *Synantherea*.

MODERN WITCHCRAFT !

Here, in Paris, we have a skillful mathematician, an accomplished soldier, who conducts the POLYTECHNIC SCHOOL in Paris, where the civil and military engineers are trained ; we mean Colonel DE ROCHAS, who at this moment occupies himself in curing diseases by

HYPNOTISM.

He is intent on fathoming everything which relates to questions of "suggestion." Coolly, imperturbably, says the *Moniteur de l'Hygiène*, he has already given to Science a series of the most curious discoveries. He flatters himself that he has now discovered the "*exteriorization of sensibility*." On a person sleeping, he has studied the question whether the life of the person presents a certain sensibility outside the body, and he has found what he calls "zones of sensibility."

It appears, according to his experiments, that life gives itself out unceasingly in waves around the being,—waves which enlarge themselves, as do the sonorous waves around the sounding bell. *Quite close* to the body, the person does *not* feel when a semblance of pinching by the fingers is made ; but a little more distant, such

SIMULATED PINCHING PRODUCES SUFFERING.

At the HÔPITAL DE LA CHARITÉ, Dr. LUYs, another "believer," whose astonishing experiments everybody has not received with ridicule, has repeated, in his "clinic," the observations of the Colonel. Taking-out a patient, one of whose fingers had been cut-off, he put him to sleep, "*drew* the sensibility" to the place occupied previously by the absent finger, and pinched the non-extant, *imaginary* finger. And the sleeping patient cried out: "Oh, you hurt me!" whilst with his other hand he rubbed the shade of his finger to soothe the pain. "Thus," exclaims Dr. G. PERCHERON, "it is possible to exteriorize human sensibility and reproduce it at will. Is there not something satanic in this?"

It is needful that the facts in question be put forward by a *notabilité* like M. de Rochas in order to render them credible ; in fact, he himself has been startled by the results obtained—and with good reason !

The experimenter, for instance, passes his hand over the sleeping person, at a small distance from the surface, within the "sensitive zone," as if he were collecting an invisible down. He conveys this "invisible matter" into a glass full of water. And

THIS WATER BECOMES SENSITIVE

to the subject of the experiment. The experimenter dips his finger into the water ; and the subject complains. The experimenter agitates the water vigorously ; and the subject cries-out. The experimenter gives the water to another subject to drink ; and it causes the latter, during more than 12 hours, atrocious pain ; while the first named subject languishes and complains although awake.

And this is not all : in the *chronique scientifique* of a great Paris journal, there may be found related the following facts, more astonishing still :

"Colonel de Rochas has had the idea of "applying the exteriorization of sensitive-ness to *photography* ; so as to produce "PHOTOGRAPHS SENSITIVE TO THEIR ORIGINALS ! "He invited as witnesses of this experiment "two members of the INSTITUTE, and a "scientist—one of his friends. A first "photograph of the sleeping subject, taken "simply in the usual way, caused, when "touched, no sensation to the subject. But "a second plate, slightly charged with *exteriorized sensitiveness*, produced, after it had "been developed, a certain sensation in "the subject. Lastly, a third plate, strongly "charged, produced, after being developed, "the following singular phenomena : If "Colonel De Rochas pressed with the finger "on the image, at the place of the feet, the "subject said his foot was trodden-on. If "the Colonel pressed on the arm, the subject complained of pain in the arm and

“rubbed at this point to lessen the pain.
 “Then, with a fine needle, the Colonel traced
 “two little lines on the *image* of the *hand*.
 “This time, the subject cried out and fell
 “cataleptic. The muscular contractions
 “being overcome and the subject awak-
 “ened completely, the patient complained
 “of his hand; and the persons present per-
 “ceived, with stupefaction, two red lines
 “on the skin of this hand, lines which cor-
 “responded exactly to the scratches by the
 “needle on the image!—‘See, therefore,’
 “said Percheron, ‘*scientific bewitching dem-
 “onstrated*; see the rehabilitation of Sorc-
 “ery. The ‘Ritual of the High Magic’ of
 “ELIPHAS LEVY may now, henceforth, hold
 “a good position in the medical libraries!’”

I know well what you will say to me, with a smile of incredulity, perhaps. Perhaps, you will think of the words “illusion,” “morbid hallucination,” or of a word more grave. And, nevertheless, the witnesses of the experiment are

ABOVE ALL SUSPICION!

And, later-on, I shall relate the fact of a case of Chorea completely cured by suggestion, and by a skillful physician whose honor and truthfulness are incontestable. And it is permissible to every one to reproduce the experiments of the Colonel, and to request him to reproduce them before all those who would like to test their accuracy!

RECENT SURGICAL FEATS.

Let us “return to earth”—if you will allow me this expression—to consider what we might call the *audacity* of our French surgeons. Up to the present, it has not been considered excessive, and many more frequent examples of it have been seen in other countries. To-day we may instance Dr. POIRIER, who has presented to the ACADEMY an epileptic whom he had trephined

IN ORDER TO REMOVE A CEREBRAL TUMOR, and in whom, during a year now since the operation, the epileptic attacks have disap-

peared. In another case, a patient—who had attempted suicide and who had a ball from a revolver lodged in his hippocampus, causing intra-cerebral hæmorrhages, convulsions, stertor, and coma—was trephined; a ventricular effusion was evacuated; the ball was seized. The cure was rapid.

It is in France that *Pylorectomy* was practiced for the first time; and, nevertheless, recourse to it has been had rarely, as is the case also with

GASTRO-ENTEROTOMY.

Dr. MICHAUX has operated by the latter method on a woman who during two years had a gastric tumor which endangered her life; after two days she was able to be nourished by the mouth, and to be purged at the end of 5 more days; her temperature never exceeded 38°C [100½ F]. The accidents, the pain, the vomitings, ceased at the end of six weeks; and her weight had increased by nine kilogrammes [20 pounds].

At Reims, Dr. DOYEN, the young surgeon who has been so much blamed for having inoculated for cancer, practiced, one after another, several Pylorectomic and Gastro-enterotomic operations, and he has been successful twice. When his patients were already much enfeebled, he introduced in them during the operation

A TUBE EXTENDING FROM THE NOSE TO THE
 JEJUNUM,

permitting the introduction of *aliments* into the intestine.

Finally, all the medical journals have related that, at Lille, Dr. GUERMONPREZ has performed with success, in the case of a phthisic patient, the

SUTURE OF THE LUNG.

It is scarcely permissible to ask where in future we shall stop!

PHOTOPHOBIA, according to Dr. HUGUIN, is an early *diagnostic sign* in whooping-cough, before the whooping stage comes on.

TREATMENT OF THE DROWNED.

We have intimated, in a preceding paper, that this question is at present looked-upon as one of immediate interest in France ; and it is needless to say how much it concerns practitioners, for many young physicians, and, indeed persons who are not medical, may be called to resuscitate the drowned, and may find themselves at a loss how to proceed.

We do not here refer to SYLVESTER'S excellent process, with which every doctor is, of course, acquainted. We offer a summary of that of LABORDE, about which, recently, much has been said, and to which we now recall the attention of our readers, while insisting on the point that it has succeeded when that of Sylvester had failed.

The mouth of the drowned being opened widely,—by two fingers of the left hand, or, better, by a spoon, the mouth is kept open to the uttermost, and the tongue is depressed. The right hand then grasps the tongue firmly and, drawing it powerfully outwards, moves it rhythmically, from before backwards, and from behind forwards, alternately. There is thus produced, if the patient is not already dead, a kind of hiccough—

THE STARTING-POINT OF NATURAL RESPIRATORY MOVEMENTS.

This process has, we beg to inform our readers, succeeded in the case of a young man whom two doctors tried in vain during an hour to revive by *all* known methods, and whom they believed to have ceased to live. Hiccough was induced almost immediately after the tongue had been depressed and strongly drawn outside the mouth.

Later-on, Dr. LAMAU declared that even the process of Laborde may fail, without justifying despair. We must, he says, practice “mechanico-artificial respiration.” Just as Sylvester's process has been mentioned in opposition to the introduction of that of Laborde, so it will, perhaps be said that Dr. Lamau's method is not entirely new. But

that matters little to the practitioner, *if he but succeeds.*

In the absence of a special instrument,

A KITCHEN BELLOWS

may be used. This should have attached to it a tube of india-rubber sufficiently long to allow the bellows to be supported on a table near the drowned person, and to be worked a sufficient time without much fatigue to the assistant. The principal operator places the free end of the tube either in one of the nostrils or in the mouth of the asphyxiated, care being taken to close the mouth and the other nostril with the hands at the moment of insufflation of the air ; and contrariwise, to open them at the moment of aspiration in the bellows, in order to allow of the expulsion of the pulmonary gas.

Since 1881, the author of this process has communicated to the ACADEMY several accounts of

RESURRECTIONS THUS OBTAINED ;

notably, among them, that of a child in whom the beating of the heart was a long time imperceptible, and could not be perceived until such mechanical artificial respirations had been continued without interruption *during an hour and a half*. Normal respiration was not re-established until a long time after the revival of the heart's action.

The author adds this aphorism : “It is therefore possible, as has been shown, to return to life after a long absence.” This is true : every practitioner knows that, *without despairing*, prolonged efforts must be made.

We may be permitted also to insist on this point : too much inspiratory force in the movements of an instrument, as *brutal* perhaps as a good kitchen-bellows, ought to be carefully avoided ; for with a *too* perfect “instrument” of this kind one may easily produce a pulmonary emphysema, the consequences of which may be deplorable. The fact can easily be verified on the corpse.

WISDOM OF THE AUTHORS.

ABSTRACTED FROM RECENT MEDICAL WORKS.

* * *

REFRACTORY UMBILICAL HÆMORRHAGES IN THE NEW-BORN.—J. R. LUYT.

Umbilical hæmorrhages in the new-born are at one time a local accident, at another time the consequence of a grave general state. The latter case is pretty rare, and occurs mostly in male children. The principal causes are: the essentially hereditary hæmophilia, syphilis, and infectious diseases.

In the new-born are often observed secondary infectious hæmorrhages, symptomatic of well-defined infectious diseases existing in the mother, the most common of which is puerperal septicæmia. The examination of the blood of the new-born has established, in some cases, the presence of the pyogenic streptococcus, which is not unknown to the puerperal state.

Alongside of these hæmorrhages secondary to well-defined diseases of the mother, there may, perhaps, occur cases in which the hæmorrhage is caused by infectious germs of a primary origin, and existing independently of any maternal affection of similar nature.

Clinically, these hæmorrhages are characterized by a multiplicity of outlets for the blood; by the inability on the part of the physician, ordinarily, to arrest its outflow; and by their tendency to relapse.

The prognosis, as a rule, is very grave; and the discovery of the cause is sometimes impossible.

The treatment, in many cases, is likely to prove inefficient. In general, recourse is had to local compresses and anti-hæmorrhagic liquids. Internally one administers, every two hours, a few drops of ferric-chloride solution in milk, to which is often added a small quantity of brandy.

Prophylactic treatment should not be neglected in cases where there is cause to fear an umbilical hæmorrhage in the new-born.

For the rest, it will be well to prescribe an invigorating regimen for the mother; to do away with the tight swaddling of the infant, and to use antiseptic dressings over the umbilical region.

SURGICAL INTERVENTION IN MALIGNANT RENAL TUMORS.—E. CHEVALIER.

Nephrectomy, such as has been practiced up to the present time, is an operation of the greatest gravity. The danger connected with it can be avoided only by an early diagnosis, which will permit of combating the neoplasm in its earliest stage.

The cases in which *functional phenomena* indicate the inception of the disease are the most favorable for this early diagnosis. Among these phenomena, hæmaturia is the first in importance, and then comes the sensation of pain. Affections of the bladder and of the lower urinary passages can be eliminated by cystoscopic examination; and by the same means it is even possible to ascertain *which kidney* is diseased.

The direct appearance of the tumor offers a less favorable indication for intervention; because, when the patient becomes sensible of the tumor, it may already be quite voluminous. The diagnosis between sarcoma and carcinoma is often impossible; sarcoma is the more frequent in children.

The exploratory incision is the most important point in the early diagnosis. The extra-peritoneal incision is the most eligible. Nephrectomy in children is inadmissible, but may be practiced in adults when a sufficiently precise diagnosis has been made; as with the exploratory incision, it will be well to make the operation extra-peritoneal.

VARIETIES OF UMBILICAL EPITHELIOMAS.—

Dr. G. BONVOISIN.

There are certain umbilical epitheliomas which borrow no peculiar character from their anatomical seat, with regard to their histological origin and constitution. Such are the pavement epitheliomas, which de-

velop themselves at the expense of the umbilical cicatrix; such, also, are the ones which are propagated from the intestine or peritoneum. But there are others, again, which should be considered as constituting a distinct variety from the pathological and histological standpoint. Their evolution bears some analogy to that of the diverticular adenoid tumors, from which however, they, differ in structure and time of appearance.

The adenomas present the complete structure of a reversed intestinal wall (peripheral epithelial layer; intermediary conjunctive layer; central layer of smooth muscular fibres, Lieberkühn's tubulous glands; follicles occasionally closed; etc.). Certain elements which enter into the constitution of the intestine (caliciform cellules, etc.) may, moreover, be met-with in these epitheliomas.

The earliest of them appear soon after the falling of the umbilical cord; others, again, at an advanced period of life. But the data of embryology and histology warrant the assumption that certain epitheliomas take their point of departure from the detritus of an intestinal diverticulum imprisoned in the umbilicus at the moment of the closure of the ring, and that the elements of this diverticulum, after remaining for years in a latent state, become prolific at some more or less advanced epoch, and give rise to the epithelial neoplasms.

SENILE DEMENTIA AND THE MENTAL AFFECTIONS OF OLD AGE.—Y. OLLIVIER.

From a mental, and even a physical, point of view there is a peculiar morbid state which may manifest itself *in young persons*, and which is absolutely *similar to senile dementia*: it is precocious senility.

Senile dementia may exist in a simple state, without delirium, characterized by the debilitation of the faculties, especially of the memory and the affective sentiments. Senile dementia may become delirious, and it is then to be regarded as a complication of

the above form. This delirium may assume, besides, all the forms of mental disorders.

The delirious ideas are always multiple, mobile and fugitive. Hallucinations are frequent, especially those connected with hearing and sight. The agitation occurs chiefly by night. The melancholic delirium, with ideas of persecution, is the most frequent; the hypochondriac delirium is also very common. Finally, the ideas most often observed in the patients relate to religion, grandeur, and love.

In senile delirious dementia, after the cessation of the delirium, there always subsists, as in general paralysis, an immutable substratum—the simple dementia.

The criminal acts of senile dementia are often committed in the precursory period, before the manifest appearance of the dementia itself.

When there is no dementia, the mania, the melancholy, and especially the nostalgia, of old age, are curable. A demented old man may, therefore, make a valid last-will in a lucid interval. As to the principal lesions of senile dementia, they consist of arterial atheroma and atrophy of the nervous substance, which manifest themselves in the diminution of the weight of the brain, principally of the cerebrum.

CANCER AND CYSTS OF THE PANCREAS.—

J. B. Roux.

Two varieties of tumors are met-with in the pancreas: cancerous and the cystic. Cysts do not proceed, as most authors suppose, from retention. Besides cysts and cancer, there is an intermediary variety, *the cystic epithelioma*; which has been fully established by clinic observations and microscopic pathological anatomy.

In the pancreas there may occur, besides, two distinct epitheliomas: the classic alveolar epithelioma, analogous to alveolar hepatic epithelioma; and the tubulous, comparable to the trabeculated hepatic epithelioma.

Like the trabeculated hepatic epithelioma, the tubulous pancreatic epithelioma co-exists with cirrhosis; and, like the same, it is formed of elements which manifestly proceed from secretory glandular cellules and which group themselves in tubes or cylinders. Like cirrhosis, the pancreatic epitheliomas gives rise to nodosities which tend to encystment.

The diagnosis is, of course, exceedingly difficult. It is true that recourse may be had to an exploratory puncture; but the author thinks that the latter is a sad expedient and deserving of blame. The puncture, on the one hand, is of little avail in the diagnosis, because the fluid extracted has rarely any distinct properties; and on the other hand, the puncture may entail very grave and even fatal accidents.

ELECTROLYTIC DEPILATION. — Dr. W. DUBREUILH.

The utility of electrolytic depilation has often been contested. It is well to note, however, that this operation, in the hands of skillful specialists, yields very remarkable results.

At Bordeaux an experienced practitioner, W. DUBREUILH, succeeded in removing a beard of 15,000 very well developed hairs from a woman in 120 séances (6½ months). Eight months thereafter the growth was very much moderated.

In order to suppress the pain, it was necessary to have recourse to a 2-per-cent solution of cocaine. With a bent canula, the anæsthetizing agent (1 gramme [16 min.] of the solution per dose) was enabled to operate on a surface, 3 centimetres [1½ inch] in length and 1 centimetre [$\frac{2}{5}$ inch] in width. It was possible to apply a current of 10 milliampères.

The bent needles used for the operation were of steel, a circumstance which presents no inconvenience if they are made to serve as the negative pole and if they are of extreme fineness.

The patient retained some pigmented spots on the skin for a month; from that time on there remained only punctiform scars. This result is an extraordinarily remarkable one, according to Dr. E. BESNIER, of the HÔPITAL SAINT-LOUIS, who recalls the deplorable conditions to which practitioners, inexperienced in electrolysis, were wont to reduce their patients, making it necessary to treat their faces, covered with keloidal cicatrices, by an unlimited number of scarifications.

Yet, as Dr. BROcq remarks, such accidents can easily be avoided. The essential point lies in not applying the electrolysis over hairs growing very densely together; and to make sure of this, it suffices to see that there occurs no confluence of the vesicles which are produced by the current. Careful practitioners will not leave out of sight this condition of success; but the mishaps that may be brought-about by ignorant empirics are beyond calculation.

EXTERNAL TREATMENT OF HYSTERIA.—Dr. P. BLOCQ.

In a series of articles published in the *Gazette des Hôpitaux*, the author, after according the first rank to the psychic treatment of hysteria, attempts to establish the essential indications for the *external* treatment, to which he assigns the second place. The scope of this treatment comprises, according to the author, Hydrotherapy, Electrotherapy, and Kinesitherapy.

Hydrotherapy is *pre-eminently* the best method for the external treatment. It is indeed that to which recourse ought to be had in a vast majority of cases, if not in all. Most frequently preference should be given to cold douches (13–18° C [55–65 F]) on the trunk, then on the feet (the whole for 15–20 minutes), followed by frictions. Douches are applied once or twice a day. In cases where it is impossible to apply such treatment, recourse should be had to wrapping into wet sheets, or to ablutions with a sponge.

Contrary to what often is said, sea baths are useful, but only in the temperate zone, and for 3 minutes *at most*.

All the applications of *Kinesitherapy* are beneficial (gymnastics, massage, general muscular exercise). Massage is really effective. According to the manifestations of the neurosis, various modifications of the kinesiotherapeutic treatment are to be applied (centripetal stroking, kneading, tapping, friction). In convulsive forms general kneading is useful. In cases of persistent contractions and rigidity, centripetal stroking is attended with good results.

The diverse modes of external treatment may be employed together,—particularly hydrotherapy and massage, which can be employed also during isolation.

ACUTE INFECTIOUS PRIMARY POLYMYOSITIS.—Dr. J. E. L. LARGER.

There is reason for giving a place in nosological classifications to this peculiar muscular disease, which is characterized as a *primary* disorder. Its ætiology is but imperfectly known as yet. Its infectious nature has been confirmed by certain precise observations.

The affection presents in general three distinct forms :

1.—An *acute* form, starting suddenly, or advancing slowly and progressively. Its evolution is of longer duration than in the following form. The termination occurs in the course of 6–8 weeks or more, ordinarily in death, rarely in recovery.

2.—A *supercute* form which starts abruptly, progresses rapidly and quickly ends with death.

3.—A *subacute* form which at the outset resembles the acute form, but its symptoms generally improve after a short time. The pain decreases, and the patient rallies gradually.

As to the *treatment*, which is always uncertain, it should be symptomatic at the outset of the affection, until a definite diag-

nosis is made. From that moment it appears logical to adopt an antiseptic medication. Much has been said in praise of quinine sulphate, antipyrine, blisters, wet cups, warm douches, sodium salicylate, etc.

The anæmia and general prostration should likewise be combated. On the whole, the therapy of this affection is still obscure, and the diagnosis often cannot be clearly established.

TREATMENT OF ASTHMATIC ATTACKS.—Dr. DIEULAFOY.

When an attack of asthma begins, the nasal fossæ should *immediately* be painted as far upward in their interior as possible with a pencil soaked in a solution of cocaine hydrochlorate (1 part in weight to 20 of water). Or, better still, spray the nose or the pharynx with this solution for 4–5 minutes.

This treatment very often puts an end to the attack. If it fails, the patient should deeply inhale 6–12 drops of pyridine poured on a handkerchief.

When the asthmatic attack reaches its climax, an injection of a solution of morphine hydrochlorate is made (1 part in weight to 100 of distilled water). At first, 8 minims are injected. If the attack does not abate at the end of 15 minutes, the dose is repeated.

Apart from the attacks, three medicaments are indicated for combating the diathesis : potassium iodide, arsenic, belladonna.

When the asthma is accompanied by emphysema, very favorable results are obtained by *compressed-air baths*.

TREATMENT OF MORPHINOMANIA BY HYPNOTIC SUGGESTION.—Dr. BÉRILLON.

From a clinical and medico-legal point of view, the distinction which has been drawn between simple “morphinics” and “*morphinomaniacs*” may be of great interest ; but it is of secondary significance at most from the therapeutical standpoint. In all cases,

demorphinization should precede the application of every other treatment.

Psychical therapeutics, or the use of hypnotic suggestion, is capable of effecting a thorough suppression of the morphine habit, in a majority of cases, without necessitating any recourse to the complete isolation of the patient in a special establishment.

The difficulty of the *demorphinization* bears no precise ratio to the daily dosage indulged-in, or to the mental troubles presented, by the patient. Veritable morphinomaniacs, long inured to the habit, and who are accustomed to take large quantities of the drug, are sometimes more easily cured than others who have contracted the habit through prolonged therapeutic administration.

In cases where isolation is necessary, the psychical treatment favors the recovery by suppressing the sufferings and the various other troubles arising from the enforced abstinence. The psychical treatment should be continued for about a month. The morphine doses are gradually reduced to a few centigrammes a day, until they finally are completely withheld. The suggestion séances should *then* be increased in frequency for one week.

The cures effected by hypnotic suggestion are notably more certain than those due to other methods. *By suggestion it is easy to inspire a thorough aversion toward morphine.*

TREATMENT OF INSANITY WITH HYOSCINE HYDROCHLORATE.—Dr. A. LODDÉ.

The action of this medicament on the insane has been studied with much attention in the United States and in Germany. The author has observed its effects in the lunatic asylum of Vaucluse (Seine-et-Oise); but his conclusions, which are the same as those of the eminent alienists RAMADIER and SÉRIEUX, do not always chime-in with the conclusions of preceding observers.

To the author, Hyoscine Hydrochlorate

is serviceable in acute and very intense cases of insanity, in delirium tremens, hallucinatory delirium, in the anxious melancholy, in general paralysis with maniac excitation, and in periods of agitation preceding or following epileptic crises. Hyoscine can be utilized with great benefit in cases of traumatism in turbulent patients, in transferences, finally in all cases where there is urgent necessity for calming a case of acute mania.

Hyoscine should not, however, be considered as curative of mania; it serves but for the treatment of its paroxysmal episodes; which, by their very violence, go so far as to imperil the existence of the insane. Cachectic affections and heart diseases are to be considered as *counter-indications* for the use of this medicament.

It should be employed *hypodermically*; and herein lies one of its chief advantages, inasmuch as it is often impossible to administer a medicament efficiently in any other way in certain stages of insanity,

The doses which seem most serviceable are: minimum, $\frac{1}{4}$ milligramme [$\frac{1}{250}$ grain]; maximum, 1 milligramme [$\frac{1}{100}$ grain], or 2 milligrammes, [$\frac{1}{50}$ grain] in quite exceptional cases. The use of the medicament does not induce any noticeable habit; at any rate, if it does so, it is in a far less degree than with morphine, and considerably less rapidly, too.

The principal physiological effects of hyoscine in normal conditions are: mydriasis, a certain degree of muscular paresis, slackening of the circulatory movement, suppression or diminution of the salivary secretion, tendency to sleep. The effects manifest themselves very rapidly (within 10–20 minutes), after a preceding period of excitation.

These physiological properties account for the prompt and powerful action of hyoscine on the turbulently insane, for whom it usually procures calmness and sleep. The duration of the effects is usually 6–10 hours.

If it is permissible to say that hyoscine undoubtedly is entitled to an important place in ordinary therapeutics, above all in the treatment of nervous diseases, on the other hand it ought to be conceded that—in order to determine its action and establish the indications for its use, apart from its therapeutic application in mental disorders, some new observations are yet needed.

TREATMENT AND POSSIBLE TERMINATIONS OF CHRONIC BRONCHITIS.—Dr. G. MORTIER.

Gangrene of the bronchial mucous membrane supervenes in general as a complication of chronic bronchitis, in the course of which the small bronchial tubes, so often dilated, have lost the elasticity necessary for ridding themselves of the mucosities which encumber them.

These stagnant mucosities are a favorable culture-medium for the development of micro-organisms drawn-in by the act of inhalation. They undergo a putrid fermentation which gives to the expectoration and the breath a sickening odor, abundantly described elsewhere. By contact with these foci of putrefaction, the mucous membrane is seriously altered; it becomes gangrenous, ulcerates, and even disappears entirely at certain points.

Three terminations are possible: recovery, or at least considerable amelioration; death by prolonged suppuration of the gangrenous foci; transformation into real pulmonary gangrene.

The *treatment* consists in sustaining the forces of the patient by a tonic and restorative regimen, and in arresting, if possible, the development of micro-organisms, by the use of carbolic acid, eucalyptol, or sodium hypo-sulphite.

HYPODERMIC INJECTIONS OF LARGE DOSES OF CREASOTE OIL.—Dr. A. HAMON.

The author thinks, with other practitioners, that creasote injections under the skin are destined to render the same services as creasote given in any other way, and that

the hypodermic application is the most commendable, because it does not entail the disadvantage of spoiling the stomach.

At the present day, practitioners make bold to administer creasote in massive doses; but the author believes that no one has ventured to employ such potent doses as Dr. BURLUREAUX,—and without the least accident at that. It is of course understood that the medicament should be applied with due caution, and with an apparatus working automatically in order that the injection may be performed with the desirable slowness.

It is not possible at this moment, to give a sufficiently explicit exposé of the *indications* for using creasote in large doses. This much may however be said, that it is a weapon which should be managed with the greatest circumspection, and by whose aid remarkable results are obtained in certain cases of surgical tuberculosis which cannot otherwise be approached without great risk; and likewise in certain forms of pulmonary tuberculosis, principally in its hæmoptoic forms, which so often are beyond the reach of every therapeutic resource.

Creasote succeeds with tuberculous patients who have no fever provoked by the injection, nor hypothermia, nor profuse sweats, nor black urine; or who experience these phenomena only exceptionally or at long intervals.

TREATMENT OF ACUTE BLENNORRHAGIA IN MAN.—A CRITICAL STUDY OF THE RESULTS OBTAINED WITH ANTISEPTIC INJECTIONS.—Dr. D. EGRET.

The acute symptoms of Blennorrhagia are alleviated by an antiseptic treatment. When however this treatment has once brought about a certain amelioration, it will often be necessary to resort to still another method. Meanwhile the antiseptic treatment offers the very great advantage of not disturbing the kidneys and the stomach. But it may be said that in general it shortens the duration of the disease merely apparently.

Combining the largest obtainable number of known observations, a great many failures are found which may in part be accounted-for by the idiosyncrasy, the arthritic temperament, and the indiscretions of the patients. It is well to note, also, that injections, unskillfully applied, may bring-on accidents.

Up to the present time the best antiseptic solutions for this purpose appear to be: bi-chloride of mercury, resorcin, and, particularly, nitrate of silver.

The author shows that there are at present many practitioners to whom the microbial nature of the disorder seems very questionable. Some of them even categorically deny this point outright. After searching for the *micrococcus* in a large number of cases, they have very often failed to find any microbe at all. Dr. MORROW indeed declares that nothing is less firmly established than the gonococcus of NEISSER.

CHOLERIFORM GASTRO-ENTERITIS OF INFANTS.—Dr. E. DUPOUY.

The gastro-enteritis of infants—this great scourge of infancy which alone claims more victims than diphtheria or meningitis—is an insidious disease, the primary causes of which are but imperfectly known. Alone in Paris 454 infants died of this disorder in 36 days. The largest quatum of victims is naturally furnished by those infants who are nursed by means of feeding-bottles, and are brought up under unhealthy hygienic conditions. The ravages of the disease fall therefore most heavily upon the infants of the poor, but the disease really *parcet nec divitibus nec pauperibus*.

After the period of diarrhœa follows that of choleriform algidity. If nothing is done, a real breakdown of the organic forces rapidly ensues. Upon persistent vomitings, suppression of the urine, prostration, insensibility, somnolence, overriding of the cranial bones, supervene stertorous respiration, and collapse with or without convulsion.

Death, under such circumstances, can no longer be called a *fatal* termination.

BARTHEZ and TROUSSEAU knew how to cure this affection “without submitting, like so many of our colleagues, to the doctrine and the hazardous theories of bacteriologists who are more intent upon striking at the microbe than upon combating the essential elements of the disease.”

The inadequacy of the new therapeutic expedients is further demonstrated by the fact that the rate of mortality at the present day attains 75 per cent, inclusive of aborted and benign cases.

But, though medical science *cannot conquer* this disease, hygiene is fully aware of the conditions under which it *may be prevented*. “It shows us that, in the ætiology of the choleriform enteritis, the greatest part of the evil must be imputed to the artificial alimentation, to the accursed feeding-bottle, and especially to that with a long hose.” Adulterated milk, mixed with the slaver of the infant, and with impure water, becomes rapidly toxic,—especially so as it forms a favorable medium for the development of ptomaines. The author’s conclusions, according to the *Moniteur de l’Hygiène publique*, are in brief these: “Favor natural nursing, and destroy the feeding-bottles of any shape whatever.”

SUBPHRENIC PYOPNEUMOTHORAX.—Dr. SADIK-RAMADAN.

Sub-diaphragmatic gaseous abscesses—from the gaseous nature of a part of their contents, and from their juxta-pulmonary situation—present themselves under peculiar physical conditions. Hence they ordinarily reveal themselves by symptoms which are precisely the classic symptoms of hydropneumothorax, to wit: amphoric murmur, metallic tinkling, brassy ringing, gurgling sound on succussion, absence of thoracic vibrations; sometimes nothing is wanting in their simulative clinical manifestations. This singularity in an *abdominal*

affection, disclosing itself by *pleuro-pulmonary* symptoms, imparts to these abscesses quite an exceptional interest, which justifies their separate description as a clinical entity or specific disease.

Two periods are to be noted in the history of the pathology of these abscesses. During the first period, they constituted an anatomopathological curiosity. During life they were regularly taken for pleural accumulations and were then first truly recognized at the autopsy. After LEYDEN,—with whom the second period begins,—they were diagnosed, and became the subject of special descriptions. They thus came to be recognized during life (GLÆSER, NEUSSER, DEBOVE, and others).

The cause of gaseous subphrenic abscess is ordinarily a simple perforating ulcer of the stomach or duodenum. In a great majority of cases, this gaseous abscess develops itself, particularly in the direction of the thorax, and borrows from the pyopneumothorax most of the physiological signs peculiar to the latter. (Exceptionally only, these signs are wanting, when the abscess grows rather more downward into the abdomen.) Hence, the disease may be confounded especially with pyopneumothorax.

But the mode of its *abdominal* start, the relative integrity of the pulmonary apparatus, the depression of the sonorous limit of the abscess during deep inspirations, the mode of discharge of the purulent fluid at the moment of puncture, constitute salient elements of its differential diagnosis. Preciser knowledge regarding the gaseous subdiaphragmatic abscesses, by means of which the diagnosis of them can oftener be made with certainty will, no doubt, *render the prognosis less formidable*. For, an operative intervention, made in proper time (DEBOVE), will probably save life.

The treatment consists in the evacuation of the pus in the promptest possible way. When the exploratory puncture gives positive results, the abdominal walls should be

incised, layer by layer, under the diaphragmatic attachments; and, after the evacuation of the pus, the cavity is to be thoroughly and antiseptically cleansed. The incision should be made preferably at the most dependent point, to facilitate the flowing of the pus, and in order that an inaccuracy in its placement may not give rise to a pneumothorax. Cases occur in which cleansing is to be eschewed (SCHEURLLEN).

The abscess being once evacuated, drainage is effected by means of perforated rubber tubes, 25–30 centimetres [10–12 inches] in length. It is of importance to avoid encystment of pus in anfractuosités. The drainage will, moreover, serve to prevent premature union of the walls of the abscess-cavity, which might likewise result in the formation of encysted collections.

Lotions with carbolized water have sometimes proved excellent for disinfecting the focus: the pus, at first greenish and putrid, becomes more favorable in aspect and less malodorous. Use is thereafter made of boric-acid water, sterilized by boiling.

A purulent pleurisy may supervene, against which the practitioner should be on his guard. Tonics and a restorative regimen are very serviceable.

OPIUM, according to Dr. G. BARDET, contains but *one alkaloid* which has a right in materia medica,—morphine; codeine is dangerous, and narceine inactive.—[?—Ed.]

COLD WATER, by rectal injection, has served Dr. J. MORTON well in *adherent placenta*; it acts by reflex stimulation.

THE WOMEN of Zürich, (Switzerland), have for a long time enjoyed the privilege of electing the *midwives*, who in that country are public officers; henceforth, however, the Conseil de Santé of the canton will present the candidates. One of the members of the Conseil will preside at the election, but will not have the right to vote.

RATIONAL DIETETICS:

STUDIES FOR "MERCK'S BULLETIN."

FOOD VALUES.

IX.

CHEMICAL DERIVATIVES OF MILK.

[CONTINUED.]

Among the chemical derivatives of milk there is described, in books devoted to dietetics, a product named

"KEFIR"

(also spelled Kefyr, Kephir, or Kephyr).

With this particular derivative, considerable stress is laid upon the action of the *Dispora caucasica*; as if "Kefir" differed in this respect from the other eligible forms of artificially fermented milk.

This, however, is not true; because *all these* eligible chemical derivatives of milk, *when properly made*, depend primarily upon a vegetable fungus also called "Kefir," as the agent which initiates the fermentative process.

This vegetable substance, as already shown, is complex in its nature and has, among others, the property of initiating chemical mutations in the saccharine elements, which produce the changes known as, and accessory to, alcoholic fermentation.

This Kefir fungus contains the fermentative agent *Dispora caucasica*. This ferment, when brought into contact with the casein and other proteid elements of the milk, in the presence of the lactic acid formed, and at a suitable temperature, etc., causes chemical changes in the proteid bodies; which, if carried on long enough, result in a complete peptonization of the casein and of all the other proteids contained in the milk.

After the growth of this fungus and the exercise of its fermenting power have once been started, the fungus can be transferred from one lot of milk to another, *ad infinitum*.

In this complex fermenting process, by various manipulations, different in degree and rapidity of action, etc., quite

A VARIETY OF CHEMICAL DERIVATIVES

may be produced, all of which differ from each-other in taste and physical properties. There are also some slight chemical differences between them; and some appear to be more digestible than others. To a number of these chemical derivatives, distinct names have been given. This has often led to the supposition that they were absolutely different articles, made through the agency of as many different kinds of ferments as there was variety in name. But, so far as is known, there is but one principal fungus in the ferment-body usually employed, that produces the alcoholic fermentation *i. e.*, the *Saccharomyces cerevisiæ*; and, associated with it, only one other (the *Dispora caucasica*) to produce the peptonization.

There is, however,

A SPURIOUS ARTICLE

often made, and sold on the market, as a chemical derivative of milk. This product is made by the single addition of brewers' yeast. True,—it is a chemical derivative of milk, but one in which *only an alcoholic fermentation* has been developed. In this instance the proteid bodies are not acted-upon and converted into protoses and peptones. Consequently it can not in any respect be likened to the class of milk derivatives at present under discussion, in which chemical mutations have been excited in both the saccharine and proteid elements. It is not in any sense a predigested milk product. It might merely be termed a desaccharinized and aërated milk product.

THE COMPOSITION OF THE MILK DERIVATIVE

"KEFIR,"

as given by Dujardin-Beaumetz, is as follows: for every 100 parts—90.73 parts of water; 3.80 of proteid elements; 2.00 of fat; 2.00 of saccharine matter, (lactose); 0.27 of

mineral compounds; 0.40 of lactic acid; 0.80 of alcohol.

Working with this composition, therefore, to secure the 130 grammes (4.19 ounces) of proteid material which is required to sustain perfectly the normal daily constructive work of the animal organism,—it is found necessary to take into the system, in the course of every twenty-four hours, 3432 grammes (110.5 ounces) of "Kefir."

In this amount there will be supplied to the system, besides the 130 grammes (4.19 ounces) of proteid matter, 3118 grammes (100.25 ounces) of water; 68 grammes (2.21 ounces) of fat; 68 grammes (2.21 ounces) of saccharine elements, (milk-sugar or lactose); 9 grammes (0.29 ounce) of the mineral salts; 13 grammes (0.44 ounce) of lactic acid; and 26 grammes (0.88 ounce) of alcohol.

These figures show a small percentage of fat and saccharine elements, while the amount of proteids secured is the same that was taken for a standard in computing the utility of milk and its physical derivatives. This quantity of "Kefir," however, furnishes the system also with nearly an ounce of alcohol per day.

OXYGEN USED.

Applying, now, the common rules for computing the amount of oxygen required to completely utilize the contained oxidizable proximate elements found in this 3432 grammes (110.5 ounces) of "Kefir,"—it is found necessary to expend 503.48 grammes (*) of oxygen to transmute all the proteids, fats, sugar, and alcohol into the most perfectly formed excrementitious products.

* Hitherto, in this series of Studies on FOOD-VALUES, the quantities of *Oxygen consumed*, as well as of *Carbon di-oxide and other katabolins produced*, in the oxidation processes within the animal economy, were indicated only in a *relative* way, in the imaginary form of atomic or molecular "units."—It has been found preferable, henceforth, to express these values and their mutual relations in the *absolute* form of *actual weight-units* (grammes);—this form admitting of readier comparisons, and enabling the reader to make computations and draw practically utilizable conclusions therefrom with greater convenience and accuracy.

In the final tabulation of the FOOD-VALUES, these *Absolute Weights* will be stated for *all* the food-stuffs computed in this series.

Here, as with all the other food-stuffs computed, the uniform amount of proteid matter—130 grammes (4.19 ounces)—is taken as the form to work-from; and all the other elements are made to conform to it, according to whatever percentage they bear to the albuminous bodies in the given quantity used.

The alcohol, being an oxidizable body, is computed in accord with the amount of oxygen required to completely transform it into carbon di-oxide and water, upon the same principle as the oxidation of the fats and sugar are estimated.

When ingesting the above quantity of "Kefir," there is still—after deducting the oxygen used in its katabolic transmutation from the quantity normally inspired per day by an average individual (750 grammes)—a surplus of 246.52 grammes of oxygen, although the requisite amount of proteid substance is secured and oxidized. This will permit of the ingestion of a larger quantity of the "Kefir,"—similarly as was found to be possible when living upon an exclusive diet of skimmed milk or buttermilk. Thereby we have at our command a means of causing a more rapid reparative action, without exceeding the oxygenating capacity of the system. As the lactic acid is not further oxidized and converted into carbon di-oxide and water, it is not computed among the oxidizable proximate elements.

THE LACTIC ACID PRODUCED,

when it reaches the stomach, acts upon the saline compounds there found,—which results in the formation of a lactate of sodium; as represented by the following equation:



The lactate of sodium passes through the system unchanged. The di-sodic hydrogen phosphate formed as above, along with that formed by the action of the hydrochloric acid on the sodium phosphate in the intestinal canal, passes into the circulatory channels and tissues of the body and aids in the

processes of assimilation. Reaching the urine, the di-sodic compounds are acted upon by the urine, with the formation of urates and mono-sodic compounds,—thus aiding in giving to the urine its typical acid reaction. The mono-sodium phosphate thus formed holds in solution in the urine some salts that otherwise would be precipitated and tend to form calculi.

HEAT AND ENERGY EVOLVED.

Computing the heat-producing power of the proximate elements, including the alcohol, contained in the 3432 grammes (110.5 ounces) of "Kefir," by the actual gramme-(*)weights of these elements,—it is found that the total quantity of heat, or energy, or mechanical work, produced is 703,690 kilogramme-metres * (5,189,788 foot-pounds).

This, as compared with several of the food-stuffs already computed, is rather a small yield of heat and energy or working-power. Yet it is slightly in excess of that obtained when using an exclusive diet of skimmed milk. At the same time the full quatum of constructive, nutritive material has been obtained, and all the proximate elements have been fully and completely oxidized into their final excrementary products.

With the "Kefir," therefore, as with the skimmed milk, the small outlay of oxygen easily explains the small yield of heat and energy, and consequently this chemical derivative can be used in identically the same conditions that the physical derivatives of milk already described were found to be valuable.

The predigested state of the "Kefir," however, makes the chemical derivative *more valuable* than skimmed milk *when the digestion is weak or the stomach irritable*.

AMOUNT OF CO₂ AND H₂O PRODUCED.

The production of carbon di-oxide and water is—when compared with that of some of the other food-stuffs so far computed—

rather small; but it is in perfect harmony with the amount of oxygen expended. The amount of carbon di-oxide produced is 533.94 grammes (*); and the amount of water is 200.48 grammes. This result corresponds very closely with what was obtained when subsisting upon skimmed milk; and yet the compositions of the two diets are somewhat different. This difference in composition undoubtedly is the explanation for one of these two food-stuffs giving better results at one time than the other, and vice-versa.

Yet the constantly re-iterated statement of THE "EVER-PRACTICAL MAN," that "my experience tells me so," and that he cares nothing for the scientific side of the question, is always confronting the scientific investigator.

On the other hand, it can be said, regarding the "ever-practical man," that *his only method* of selection of diet is, *to cut-down and "try,"* until perchance he hits upon a form of diet that may just suit the case in hand.

With a complete knowledge of the chemical composition of the food-stuffs, and a careful study of the digestive possibilities and the oxygenating capacity of each individual treated, the thoroughly scientific physician is in possession of a solid basis upon which he can

SELECT AT ONCE THE MOST AVAILABLE DIET; and he is thus largely spared the necessity of introducing one food after another, until in despair he advises the eating of anything at hand that appears to agree with the patient,—all of which would be a sad waste of time, in many instances resulting in irreparable damage.

Theoretical and exact chemico-physiological knowledge is good. Practical everyday bedside knowledge is also good. But the full possession of *both* renders the successful treatment of disease in all its manifestations doubly assured.

* See preceding note!

* See note on preceding page!

Another variety of these chemical derivatives of milk, which are described in works devoted to dietetics, is known under the name of

GALAZYME.

This peculiar product is said to be made on the continent of Europe by adding to the milk some sugar (presumably cane-sugar, although the exact form is not stated), and *a special ferment*, which also is unnamed.

The presumption, however, is that the "special ferment" used is nothing more nor less than the complex "KEFIR FUNGUS" already described,—possibly nursed in a special manner.

In this particular instance the original ferment bodies are probably manipulated in a little different manner from that used in the other chemical milk-derivatives; which circumstance, together with the addition of the sugar, may cause a larger production of alcohol. Aside from this there is little reason to think that Galazyme differs much from "Kefir" milk in its composition and possibilities. As no exact analysis is at hand, its physiological possibilities cannot be computed.

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In this same connection, it is stated that

DESCHINES,

in France, has fermented milk for specific dietetic purposes by using "the best ferment employed in the production of alcohol."

(As E. C. HAUSEN, however, distinguishes *six kinds of yeast* which are capable of producing alcoholic fermentation [only *three* of which are specially referred-to: the *saccharomyces cerevisiæ*, the *saccharomyces pastorianus*, and the *saccharomyces ellipsoides*], it is hard to tell, in the absence of any more specified statement, *which* is here to be selected as "best.")

The final result of Deschines's process is the production of an effervescing milk-beverage, which contains one per cent of alcohol and a large amount of carbon dioxide. There is, however, no evidence that

in this compound the proteid elements are in any sense predigested.

THE COMPOSITION OF THIS COMPOUND

—which, strictly speaking, should be classed as a Desaccharinated and Carbonated Milk-derivative—is given by DUJARDIN BEAUMÉTZ ("L'Hygiène alimentaire," p. 43) as follows:—For every 100 parts: 88.10 of water; 2.76 of proteid substance; 3.24 of fat; 2.95 of milk-sugar; 1.05 of lactic acid; 0.70 of carbon di-oxide; and 1.20 parts of alcohol.

This composition necessitates the daily ingestion of 4729 grammes (152 ounces) of Deschines's milk-derivative, to secure to the system the required 130 grammes (4.19 ounces) of proteid elements, which are necessary to sustain the constructive work of the system during twenty-four hours.

When taking this 4729 grammes (152 ounces), there is supplied to the system, in addition to the 130 grammes (4.19 ounces) of proteid elements: 4165 grammes (133.9 ounces) of water; 153 grammes (4.92 ounces) of fat; 139 grammes (4.48 ounces) of milk-sugar; 49 grammes (1.59 ounces) of lactic acid; 33 grammes (1.06 ounces) of carbon di-oxide; and 56 grammes (1.82 ounces) of alcohol.

Thus, with this quantity of this particular milk-derivative, the system is compelled to receive nearly *two ounces of alcohol daily*, in order to secure the full quota of proteid elements.

OXYGEN USED.

Computing the contained proximate principles in this 4729 grammes (152 ounces) of Deschines's milk-derivative, by the same rules that have been applied in the preceding estimate,—it is found necessary to expend 887.54 grammes of oxygen to completely transmute all these principles into complete products for elimination by the excretory organs.

This shows an excessive expenditure of oxygen to the extent of 137.54 grammes above the average normal intaking capacity of the system. It is apparent, therefore,

that this compound is not among the most practical and valuable milk derivatives. Owing to the fact that it is *not a predigested compound*, and also requires an excessive amount of oxygen to oxidize all the proximate elements necessarily introduced in the attempt to secure the requisite amount of proteid substances,—the use of this derivative as an exclusive diet would damage the physiological economy by constantly overworking the respiratory and assimilatory capacities.

HEAT AND ENERGY EVOLVED.

Computing the heat-producing power as above done, in taking into account all the oxidizable elements, such as the proteids, fats, sugar, and alcohol, it is found that the total quantity of heat or energy, or mechanical work produced is 1,236,052 kilogramme-metres (9,040,364 foot-pounds).

This result, as compared with many of the other foods computed, is extremely large. The amount of heat, energy or working power produced is much in excess of the normal demands of the system.

This very large yield of heat and energy is easily comprehended when the large expenditure of oxygen is noted. But any food-stuff or other stuff that has a common tendency to overtax the oxygenating capacity of the system must necessarily cause, in time, a progressive sub-oxidation state. This will be followed by imperfect assimilation, loss of vitality; and must finally result in the development of various kinds of diseased processes. In fact the overtaxing of the digestive and oxygenating capacity of the system is the true foundation of nine-tenths of all the diseased processes to which human flesh is liable. In this instance there is illustrated a so-called "dietetic remedy" which *in itself may be severely damaging* to the physiological economy.

AMOUNT OF CO₂ AND H₂O PRODUCED.

From the large expenditure of oxygen, the production of carbon di-oxide and water

is considerably above the ordinary norm. The amount of carbon di-oxide produced is 936.66 grammes. This is an unusually large production of CO₂; and the system may have difficulty in excreting it as rapidly as it is produced,—thus-overcharging the lung-cells with carbon di-oxide, and thus still further interfering with the intake of oxygen. In this way the defective oxygenating capacity may come to favor a still more rapid development of diseased processes.

The production of water is also large,—being 369.79 grammes. This, however, is in itself no disadvantage, but rather favors a more perfect action on the part of the excretory organs.

Such a large intake and production of water is unquestionably a decided factor in keeping all the glandular organs thoroughly cleansed and free from effete material that otherwise would tend to accumulate in them and prevent their free action, which latter, in the overtaxed condition of the system, must be sustained—or death must be the closing act.

Notice to our Readers.—The studies on "FOOD VALUES" will be continued in our next Volume.—[Ed.]

MUNA-MUNA is a plant lauded in Ecuador as an *emmenagogue*, uterine stimulant, and even in sterility. It is a Labiata of the family Micromeria. It is recommended, in infusion, against mountain-sickness.

CARBON BI-SULPHIDE 3-6 parts, Calcium Phosphate 2 parts, Distilled Water 100 parts, has recently been recommended by Dr. COROMILADE DE CALAMATAS, for vapor-inhalation in pulmonary *phthisis*. The inhalations are repeated 4 or 5 times a day for two to five months. The author claims to have definitely cured 100 cases of *phthisis* in the second or third stages, almost half of them occurring in individuals of tuberculous families.

CLINICAL PAPERS

ON LIVE TOPICS.

ABORTION.

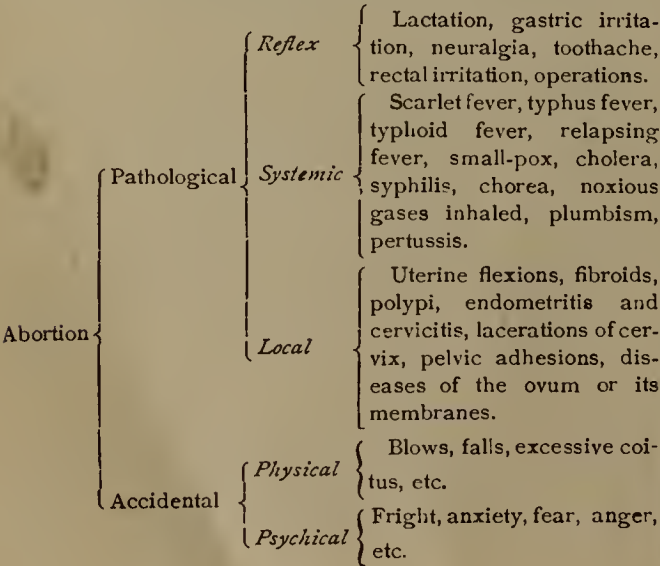
By WILLIAM DUNCAN, M.D.

[Abstract of a Lecture delivered at CHARING-CROSS HOSPITAL.]

Abortion may be defined as the separation and expulsion of the contents of the gravid uterus at any time before the seventh month (i.e., before the viability of the foetus). It is said to occur more often in young girls; also in women approaching the climacteric. Multiparous women are more liable to abort than primiparæ, and women who have once aborted are prone to a recurrence at the same period in subsequent pregnancies. This is accounted for either by (a) the recurrent death of the foetus, or by (b) the persistence of the cause which produced the first (as flexions, uterine tumors, or endometritis). In some cases no local cause can be found, and then it is thought that some undefined constitutional irritability exists, which only permits the uterus to reach a certain degree of development. Abortion is said to occur most frequently between the ninth and sixteenth weeks; doubtless, however, many unrecognized early abortions take place—when a woman misses a period, and then has an excessive one, accompanied by clots, she probably has been pregnant without knowing it.

THE CAUSES

may conveniently be arranged as follows:—



Most of the causes under the first head act by inducing the death of the foetus. The reflex causes act by irritation of the excito-motor nerves. Lactation is a common cause, as about 17 per cent of the women who suckle whilst pregnant abort. According to TYLER SMITH, this is due to the double excentric irritation of the diastaltic function proceeding from the uterus and the breast; doubtless the woman's anæmic condition is also a factor. Gastric irritation giving rise to obstinate vomiting may end in abortion, so also may severe neuralgia. Strong purgatives causing rectal irritation have been known to produce expulsion of the uterine contents. The same result may follow operations performed during pregnancy, especially if done on the genito-urinary organs, and at a time corresponding to what would have been a menstrual period. The result is due to shock, and not to pyrexia following the operation. On the other hand, it must be remembered that many operations (even single and double ovariectomy) have been performed on the gravid woman without interfering with gestation; but care should be taken to choose a time between the menstrual epochs. I have operated on an extensive perineal rupture when the patient was two months pregnant; she did not abort, neither did the new perineum give way during the subsequent parturition.

Many systemic diseases (as seen from the table) are liable to produce abortion, but the most potent of all is syphilis, especially if both father and mother be syphilitic. The effects of syphilis are very far-reaching and long-continued. The effects of lead on the gravid state are interesting, for the pregnant woman is liable to abortion not only when she suffers from plumbism, but also, when being herself free from the taint, her husband is a lead-worker. Any local disease which

interferes with the proper development of the uterus or its lining membrane, may cause abortion—retroflexion more often than pathological antelexion, as in the latter condition the woman is frequently sterile; if, however, she does conceive, abortion is likely to follow. A series of early abortions is due to either retroflexion or syphilis. Endometritis and endocervicitis are, according to WHITEHEAD, common causes of abortion. Out of 378 abortions he traced 275 (nearly 73 per cent) to disease of the lower part of the uterus; hence the importance of treating well-marked endocervicitis during pregnancy. Extensive laceration of the cervix in a former labor, is given as a cause, and there is no doubt that pelvic adhesions (the result of a peritonitis) which bind down the uterus in the pelvic cavity, may prevent its growth and evolution.

With regard to the accidental causes, there is no doubt that a great mental shock may bring-on an abortion, not only by inducing uterine contraction, but also by causing the sudden death of the foetus. In bygone times, under the influence of terror and pain, martyred women are said to have aborted at the stake, and condemned women have been known to abort prior to execution; indeed, in some women the dread of a miscarriage may bring it about (PRIESTLEY). Up to the end of the third month the ovum comes away in its membranes, but after that time in the usual way with pains, escape of the liquor amnii, then expulsion of the foetus, followed by the placenta.

THE SYMPTOMS

are essentially two—hæmorrhage and pain. In the first two months the hæmorrhage is like a profuse menstruation; the pains are due partly to uterine contraction and partly to the expulsion of clots through an imperfectly expanded cervix. These symptoms may last three or four days, and, as the ovum either passes in pieces or is surrounded by clots, these early abortions are often looked-upon as merely retarded and profuse

periods. After the second month other symptoms are met-with—as bearing-down pains in the pelvis, a watery discharge, and then the hæmorrhage and pain. The hæmorrhage may be slight and soon stop, or it may gradually increase in amount. In some cases it stops for a short time and then recurs; the uterine contractions become more and more severe until the ovum is expelled. Sometimes the pain precedes the hæmorrhage. In other cases there may be no pain; and these are more hopeful with regard to checking the threatened abortion.

When the abortion occurs in the early months and the foetus has died some time previously, there is often no trace of it to be found. When the extravasation is considerable it sometimes breaks through the decidua vera and gets between it and the decidua reflexa; or it may take place outside the reflexa, dissecting it up. The pressure upon the ovum causes rupture of the sac and escape of the amniotic fluid; then, if the uterine contents be not expelled, the foetus and membranes surrounded by coagulated layers of blood form what is called a “mole”; when the coagula are fresh it is called a “blood mole”; but when they have undergone more or less organization it is called a “fleshy mole.” These moles are seldom bigger than the fist and are usually expelled between the third and fifth months.

If in any case there be abnormal adhesions between the decidua and the uterine wall, when abortion occurs the ovum escapes, and then it frequently happens that retraction of the uterus on its contents takes place, the cervix closes, and the patient has an incomplete abortion. In a case of this kind the following terminations may result:—

(a) The hæmorrhage continues, and the retained products of conception are gradually thrown off by being loosened from the uterine wall, in consequence of retrograde changes taking place in them.

(b) The hæmorrhage may cease altogether for days or weeks, and then sudden uterine

contractions with profusè hæmorrhage take place and the uterus is emptied.

(c) Putrid decomposition of the retained products sets-in, especially when they are completely separated from the uterine wall. This decomposition is brought about either by the entrance of air by the introduction of the finger, or when part of the ovum hangs through the os uteri, the decomposition extending upwards from the vagina. Septicæmia does not often occur, as the decomposition usually takes place late, when there are granulations on the uterine surface and the sinuses are closed. In these cases high and irregular temperature with perhaps attacks of flooding set-in, and these continue until the uterus is emptied either naturally or artificially; sometimes pelvic peritonitis and cellulitis occur. Numerous examples of this result of incomplete abortion have come under my care at various times.

(d) Lastly, there may be formed a so-called "placental polypus." In these cases a bit of placenta or decidua remains firmly attached to the uterine wall and has some fibrin deposited upon it from the extravasated blood; or the fibrin may be deposited on the rough placental site, and thus form a polypus. These polypi give rise to sudden floodings, or they may decompose and set up septic absorption. After an abortion the uterus undergoes involution as after labor at term; and as women take little care of themselves after an abortion, as a rule, this accident often results in chronic uterine disease.

THE DIAGNOSIS

of abortion is made from the hæmorrhage, pain, and dilatation of the cervix; perhaps part of the ovum may be felt; this might be mistaken for a soft polypus, but in the latter there is no history of pregnancy. All clots passed should be carefully broken up in water, because the embryo may be inside one, and thus be easily missed without a thorough examination. If there be no clots to examine and we find the hæmorrhage and

pain have ceased, then we cannot be certain whether the uterus is empty or the threatened abortion has been staved off; but if later-on hæmorrhage recurs and the uterus has not gone down in size, or an offensive discharge sets-in, then we know an incomplete abortion has taken place.

THE PROGNOSIS

of abortion (when not criminal) is very good if it be properly managed. Death, however, may result from hæmorrhage, septicæmia, or peritonitis. Two hundred and thirty-four cases were treated at the Rotunda Hospital with only one death, which was due to heart-disease. After criminal abortion death is common; thus of 116 such cases collected by TARDIEU, 60 women died.

THE TREATMENT

of abortion may be considered under the following heads: (1) The prophylactic treatment; (2) the treatment of threatened abortion; (3) the treatment of inevitable abortion; and (4) the treatment of incomplete or neglected abortion. The prophylactic treatment is most important. Whenever a patient gives a history of having had one or more previous abortions, a thorough investigation of both her and her husband must be undertaken, and if any constitutional disease be found it must be carefully treated. Syphilis is the most frequent and important disease, and whenever it is suspected, both husband and wife should undergo a thorough course of antisiphilitic treatment before the risk of pregnancy is again incurred. The results are often most gratifying. A patient contracted syphilis from her husband and had four miscarriages within the first two years of her married life. She had marked endometritis, which I treated by the local application of the acid nitrate of mercury. At the same time she and her husband underwent a six months' course of treatment, with the result that she now has two healthy children. DIDAY maintains that it is not sufficient to give mercurials before pregnancy takes place, but that they should

also be administered during each successive pregnancy, even though the woman shows no signs of syphilis. Personally I believe in combining iodide of potassium with perchloride of mercury in these cases; and even if there be no syphilis, the above combination exerts a beneficial action on the uterine mucous membrane.

If a patient be gouty or rheumatic, treatment appropriate for these conditions must be ordered. Anæmia requires iron in some form or other. A course of water and baths at Schwalbach or Kissingen often proves most beneficial. Any local malcondition should be remedied. If there be uterine displacement it must be set right and a suitable pessary introduced. This should be removed after the fourth month, when the uterus has risen out of the pelvic cavity. Marked endocervicitis with erosion of the os uteri should be treated by the careful application of carbolic acid or nitrate of silver. In some diseases of the placenta causing intra-uterine death of the foetus, the late Sir JAMES Y. SIMPSON thought that the administration of twenty grains [1.3 grammes] of chlorate of potassium three times a day during pregnancy, averted abortion by increasing the oxygen in the mother's blood. In women who abort at the same period in several successive pregnancies, and in whom no disease of ovum or uterus can be discovered, absolute rest in bed at the approaching period of danger must be enforced, whilst nerve-sedatives—such as bromide of potassium and tincture of sumbul—should be administered.

When abortion is threatened, a vaginal examination must always be made in order to find out the state of the uterus. If any portion of the membranes has been passed it is hopeless to attempt to check the abortion, so also if any portion project through the os uteri or be in the vagina. If we can touch the ovum with the finger in the cervical canal, the case is desperate but not hopeless; if the os uteri be closed, the hæmor-

rhage slight and the pains mild or disappearing, the case is very hopeful. The patient must be kept absolutely at rest in bed in the horizontal position; no pillow under the head, but one under the pelvis helps to drive the blood away from the pelvis. The room is to be kept cool; the patient should be given liquid food, to be taken cold; no stimulants must be given; and the bowels are to be regulated by a gentle laxative—such as cascara sagrada—or a fluid dram [4 c.c.] of glycerin injected into the rectum. The practice of applying cold to the lower abdomen and the vulva is not a good one, as it is likely to bring-about what we wish to avoid—viz., the uterine contraction.

With regard to drugs, my rule is that if both hæmorrhage and pain be present, I give a mixture to be taken every three hours, each dose consisting of *Liquor Morphini Hydrochloratis*, 20 minims [1.25 c.c.]; *Compound Tincture of Chloroform*, 20 minims; *Acid Infusion of Roses*, enough to make 1 fluid ounce [30 gm.]. If, however, there be no pain whatever, but simply hæmorrhage, I find the *Fluid Extract of Ergot* given in 10-drop doses every two or three hours, to be of the greatest use in causing gentle tonic contraction of the uterus and controlling the hæmorrhage. The American physicians largely use, and believe in the efficacy of, one-dram [4 c.c.] or two-dram [7.5 c.c.] doses of the *Fluid Extract of Viburnum prunifolium* (Black Haw), given every few hours. If the treatment adopted stops the threatened abortion, the patient should be kept in bed for a week after all symptoms have disappeared. If, however, the hæmorrhage becomes more copious, with clots, and accompanied by pains increasing in severity, together with a dilated cervix and the escape of the liquor amnii, or if the ovum or pieces of the decidua be found in the vagina or in the clots passed, then it is almost certain we cannot prevent abortion taking place. It is, nevertheless, remarkable how in some cases the

gestation may go on when one would imagine it could hardly possibly do so.

At the present moment a patient is daily expecting her first confinement; when she was between two and three months pregnant she had severe hæmorrhage, with pains. On examination the os uteri was dilated to the size of a shilling and the ovum was readily felt by the finger inserted through the os uteri. As rest and sedatives for two days caused no change, I concluded nothing could stave off abortion, so I gave dram doses of ergot every three hours, expecting this to be followed by the expulsion of the uterine contents, instead of which the hæmorrhage ceased, the os uteri closed and the patient has gone on to full term.

Last year I saw a lady in consultation with Mr. Walker, of Willesden. When between three and four months pregnant, she was seized with hæmorrhage and pain, and had a profuse watery loss, so that it was thought the liquor amnii had escaped and that of course the abortion was inevitable. As, however, there was no dilatation of the os uteri, we decided to keep the patient absolutely quiet, and to give sedatives. This treatment was carried out for some weeks, and the patient ultimately was delivered of a fine, healthy child by means of forceps.

SCANZONI mentions the case of a woman who, when three months pregnant, had profuse hæmorrhage with clots; as all hope of staving off the abortion was abandoned, large doses of ergot were administered; the vagina was plugged for thirty-six hours, the sound was passed and the uterine contents stirred up. Lastly, at the end of three weeks flooding, a solution of per-chloride of iron was injected into the uterus; but notwithstanding all this the woman quickened two months later.

The treatment of inevitable abortion depends on how far the gestation has advanced. In the first two months it is rarely necessary to do more than keep the patient at rest and

give one-dram [4 c.c.] doses of ergot three or four times a day. If, however, the hæmorrhage continues, showing there is incomplete detachment of the decidua, it is essential to dilate the cervix (in the manner to be presently mentioned) until the forefinger can be introduced into the uterine cavity and the uterine contents removed. During this manœuvre the uterus must be held steady by the other hand placed over the abdominal wall. In cases where the deciduæ are very adherent it is necessary to curette the uterus carefully and completely, with every antiseptic precaution.

After the second month the ovum is either thrown off entire, or the sac ruptures and the ovum escapes; the treatment in either case is, to empty the uterus. If the cervix be dilated, one or two fingers (thoroughly cleansed and dipped in a per-chloride of mercury solution) are passed through the os. In order to do this it may be necessary to introduce the whole hand into the vagina; but this is a painful procedure, and, as a rule, requires anæsthesia. Having got one or two fingers into the uterine cavity, they are gently insinuated along one side up to the fundus and then down the other, so as to completely surround the ovum and effect its expulsion, all the while keeping up steady pressure on the uterus externally.

If the cervix be undilated (and this is one of the difficulties) it must be dilated. A good plan is to tampon the vagina; by this means the hæmorrhage is checked, and in seven cases out of ten, on removing the tampon in about twelve hours, the os uteri will be found dilated and the ovum projecting. Plugging the vagina, to be of any use, must be done properly; on an emergency a soft towel, handkerchiefs, or strips of linen will do; but sponges are bad. The best method is as follows:—Tie about a dozen pieces of cotton-wool (each the size of a Tangerine orange) on a piece of string, each plug being about six inches from its neighbor; put them in a 1:3000 per-chloride or

:50 carbolic solution. Next irrigate the vagina with some of the solution, and with the patient in the left semiprone position, pass a Sims's speculum. Take the plugs out of the antiseptic solution, squeeze them dry, and then pack the vagina,—first of all packing carefully all round the cervix in the cul-de-sac and then the vagina below the level of the cervix, using more plugs if necessary. The tampon is removed after twelve hours, and if then the cervix be undilated, some recommend re-tamponing once or twice more; but to this, there is the grave objection that the plugs may become offensive, and the patient runs the risk of septic poisoning.

The tampon is exceedingly useful if the patient is collapsed from excessive hæmorrhage, as it gives her time to rally, and stimulants as well as nourishment can be administered; but if there be no collapse, or if after using the tampon once the cervix be still undilated, I am confident that no plan of treatment can compare with rapid dilation by means of Hegar's dilators. This is done as follows:—The dilators, speculum and vulsellum forceps are placed in a per-chloride solution; the patient is then placed either in the semiprone or lithotomy position, and it is not absolutely necessary, unless she be very nervous, to give an anæsthetic; next, Sims's speculum is passed and given to a nurse or assistant to hold, the anterior lip of the cervix is seized with a pair of vulsellum forceps, and a douche given; when one dilator after another is passed with perhaps a minute's interval, until the cervical canal will readily admit the finger; then the uterine contents are carefully removed either with the finger or a curette, the cavity is well douched with the per-chloride solution by means of a double catheter, and a pencil consisting of twenty grains of iodoform is passed up the cervical canal, the vulsellum removed from the cervix, and a couple of cotton-wool plugs soaked in glycerin pushed up the vagina; the speculum is removed,

and the patient put back to bed. As a rule she suffers practically no subsequent pain, and it is rarely necessary to give a suppository containing one-third of a grain of morphine; the plugs are allowed to remain in about twelve hours, then removed, and an iodine douche given night and morning for about a week after. Having carried out this routine treatment in dilating the uterus and removing its contents in (I may say) hundreds of cases, I feel justified in asserting that it is practically devoid of risk.

The use of tents is, if possible, to be avoided, as they may set up septic trouble, and they have been known to cause death from tetanus as well as from septicæmia. If ever employed, the tents should have been previously soaked in an ethereal solution of per-chloride of mercury. The use of the ovum forceps is, I think, dangerous; but careful and gentle curetting is, in my experience, quite safe.

In the treatment of incomplete abortion, when the uterus has been completely emptied, all hæmorrhage ceases; but if after the patient begins to go about she suffers from recurrent losses of blood, and especially if the discharge be at all offensive, it is pretty certain that some foetal product remains behind. Sometimes the remains may be removed by disintegration or suppuration, but the patient runs great risks of septic absorption with pelvic inflammation, and a fatal result may ensue; but even in cases where there is nothing but repeated losses, the patient's general health and strength become seriously impaired, so that in all cases of hæmorrhages continuing after an abortion has taken place, and where a week's trial of ergot in one-dram [4 c.c.] doses every three hours with perfect rest does not effect a cure, the proper treatment is to dilate the cervix in the manner already described, and to remove the retained products either with the finger or curette. It is remarkable how an extremely small bit of placenta, left adhering to the uterine wall, will give rise to profuse

hæmorrhage. I have treated several cases where the piece was not larger than the little-finger-nail. An excellent example of the kind I saw a few weeks back in consultation with Dr. Waterhouse, of West Hampstead. A patient of his in her second pregnancy aborted about the third month (during his absence from town); the ovum and membranes were not found, and notwithstanding rest and ergot, the hæmorrhage persisted on and off for some weeks. When Dr. Waterhouse first examined the patient, he found the os uteri closed and the uterus only slightly larger than normal. On my examining her, I found the condition exactly as above; but looking at the fact that the hæmorrhage recurred sharply, I thought most likely something remained behind, and recommended dilatation and curetting. This brought away a distinct but small bit of placenta about half the size of a hazel-nut. All hæmorrhage ceased from that day, and the patient was well in a week.

It is well to remember that in the fourth month of gestation two fingers can be introduced, at the sixth month half the hand, and after the seventh month the whole hand, into the uterine cavity.

INFANTILE SYPHILIS.

By Dr. ROMNICIANO, Bucharest.

[Abstract of a paper read at the SECOND CONGRESS OF DERMATOLOGY AND SYPHILOGRAPHY, recently held at Vienna.]

During the last seventeen years I have had occasion to observe 723 cases of syphilis in children, 390 boys and 333 girls. The manifestations of the disease were of the most varied: roseola, mucous patches of the tongue, of the tonsils, of the anus, of the genitals; syphilitic coryza, ecthyma, and pemphigus; abscess (11 cases); syphilitic psoriasis (4 cases); mumps, tubercles (27 cases); syphilitic periostosis (3 cases); syphilitic exostosis, syphilitic eczema (7 cases); syphilitic blepharitis (3 cases); syphilitic cachexia, and indurated syphilitic ulcers.

The large majority of my cases occurred

in early infancy, the disease showing itself any time after the seventh day, and being particularly frequent between one and five months. With rare exceptions, not to say never, the first manifestations of the hereditary syphilis commenced with coryza. In one case (where both parents were syphilitic) it began with an attack of enteritis which yielded only to mercurial treatment (frictions); at the age of three months the child also had mucous patches in the mouth. Next to coryza, mucous patches were the most frequent manifestations, probably because they have a tendency to re-appear after being once cured. Syphilitic eczema was very rare, and then it was not the only syphilitic symptom the child presented.

FORMS OF THE SYPHILITIC MANIFESTATIONS.

The various syphilitic phenomena may be divided into three forms,—*mild*, *medium*, and *grave*. The mild form is the most frequent; the diverse manifestations appear in paroxysms, on the skin and on the mucous membranes, once or twice until the age of 6 or 8 months is reached, when they disappear definitively under treatment. The medium form is more rare; the affection usually relapses, the symptoms showing themselves off and on again for several years. The grave form is very rare indeed; the syphilitic manifestations re-appear at more or less frequent intervals up to the age of 14 or even 15 years.

TREATMENT.

The treatment I have found most efficacious is frictions with mercurial ointment (50%), as much as 2 grammes [30 grains] being used daily even in the new-born. The frictions are made over the chest or the abdomen, 1 gramme [15 grains] being rubbed in at a time. These regions were chosen because they are easily exposed, and the child is not apt to get a chill. The number of inunctions necessary to a cure was 8 to 16. Among the secondary complications, the mucous patches were the last to disappear, no matter where they were seated.

Simultaneously with the frictions, the mother, if the babe was nursed at the breast, was submitted (even when she never had any symptoms of syphilis) to a mercurial treatment, either with Van Swieten's solution ($\frac{1}{10}\%$ corrosive sublimate) or with Gierst's syrup (15% bin-iodide of mercury)—one spoonful a day.

As for the treatment with subcutaneous injections of the mercurials, my experience has given the following results:—(1) The injections are so painful that they exasperate the children; (2) they very often give rise to abscesses; (3) they constitute an uncertain treatment and one longer than the

inunctions; (4) they have never brought about the cure.

The late complications of infantile syphilis—such as syphilitic tubercles—were submitted to a mixed treatment, and those that ulcerated were besides cauterized with the nitrate-of-silver pencil and dressed with a mercurial (red precipitate) ointment or with iodoform. Iodole did not appear to be more efficacious.

Complications affecting the bones were successfully treated with iodide of potassium or of sodium, both of which gave quite prompt results.

NEW REMEDIES,

AND NEW LIGHT ON OLD ONES.

ANTIPYRINE IN EYE DISEASE.

Dr. WICHERKIEWICZ, an ophthalmologist of Losen, has used with alleged success instillations of 1 to 25% aqueous solutions of ANTIPYRINE in some 600 cases of diverse ocular affections, —such as simple and granular conjunctivitis, dacryocystitis, episcleritis, scleritis, chronic glaucoma, &c.

Even 2% solutions of antipyrine, instilled into the eye, provoke in the beginning a burning sensation, which, with more concentrated solutions, may be transformed into a quite violent pain. However, the burning and the pain never last longer, according to the doctor (*Sem. Méd.*), than a few moments and are soon replaced by a comfortable sensation due to the sedative and ischæmic action of the antipyrine.

It is chiefly in simple conjunctivitis, acute or chronic, and more particularly in those which so often survene upon influenza, that Dr. W. has obtained excellent results with instillations, thrice daily of feeble solutions (3 to 5%) of antipyrine. Under the influence of this treatment the secretion rapidly diminished, and cure followed even in the

cases which had proved rebellious to all the means previously employed.

In the treatment of acute granular ophthalmia antipyrine cannot replace silver nitrate, but it is believed to be very useful against the chronic form of that affection in which, instilled three times daily in 25% solution, it is said to considerably diminish the secretion as well as the tumefaction of the conjunctiva.

Injections of a 25% solution into the lachrymal sac (after washing that sac with boric-acid water), repeated once or twice a day, exert, it is claimed, a very favorable influence in cases of dacryocystitis.

In episcleritis and in scleritis the instillations of antipyrine are reported to soothe the pain, diminish the episcleral swelling, and contribute to the clearing-up of the corneal opacities.

In chronic glaucoma Dr. W. has obtained considerable sedation of the pains and a diminution of the hardness of the eyeball, by twice daily pouring into the nasal duct corresponding to the diseased eye a few drops of a 25% solution of antipyrine,

while the patient held his head strongly thrown backward.

Finally, Dr. W. has found that the effect of the antipyrine was zero in cases of phlyctenular conjunctivitis, of scrophulous keratitis, and of blepharitis.

BENZ-ANILIDE AS AN ANTIPYRETIC.

BENZ-ANILIDE (Phenyl-benz-amide) has been used successfully by Dr. E. KAHN, of Strassburg, in *infantile* affections as far back as 1888. (See MERCK'S BULLETIN, Vol. II, p. 15.) Recently Dr. L. CANTU (*Riforma Med.*) has employed it with good results in 5 cases of typhoid fever, 12 of rheumatism, 4 of pneumonia, 3 of neuritis, 3 of sciatica, 2 of malaria, 1 of chorea, and 1 of tetany. The medicament was first given in the same doses as acet-anilide; these proving insufficient, however, the quantity was increased first to 1 gramme [15 grains], and then to 2 grammes [$\frac{1}{2}$ dr.], at which dose the drug manifested its full action. Daily doses of from 4 to 6 grammes [1 to $1\frac{1}{2}$ drs.], administered in capsules, were well borne, it is reported; but symptoms of intolerance began to appear after several successive days' use.

In febrile conditions the effect of the benz-anilide on the temperature was very energetic, and seemed greater in proportion to the elevation of temperature. The action began from $\frac{1}{2}$ to $1\frac{1}{2}$ hours after the ingestion of the drug, and the maximum effect was attained at the end of 4 or 5 hours, when the temperature again began to rise, reaching its original level in 10 to 12 hours. The respiration was not affected, as a rule; occasionally it is increased in frequency. The pulse, on the other hand, became slower and softer, and markedly diminished in tension; this effect, however, did not seem to be in proportion to the effect on the temperature.

In none of the cases was there any disturbance of the digestive apparatus observed. The urine suffered no change, as regards

quantity, density, or reaction; its color was somewhat darker than normal, inclining toward a greenish tint, and increasing in intensity after exposure to light and air. With large doses the color at times became nearly black.

On the whole, benz-anilide appeared to be a simple antipyretic, and to have had little if any influence on the course of the disease.

CREASOTE IN WHOOPING-COUGH.

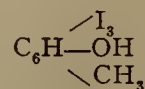
Dr. LEREFAIT of Rouen has employed CREASOTE in whooping-cough, and reports very good results (*Wien. Med. Presse*). In every case where the disease had not already been complicated with a serious pulmonary affection—such as capillary bronchitis or pneumonia—when the treatment was begun, there was observed a gradual diminution in the frequency and intensity of the attacks, which in the end completely disappeared in from five days to six weeks, according to the severity of the case.

It was also found that the creasote cures the vomiting much faster than any other remedy. Even in the severer cases, where each attack was followed by vomiting, this symptom was arrested within twenty-four hours,—a result in itself valuable, because it renders the ingestion of food possible, which enables the patient to more efficaciously combat the disease.

The creasote was prescribed in $\frac{1}{2}\%$ solution, the smallest dose given of this being 3 teaspoonfuls a day (in a child 44 days old).

LOSOPHANE, A NEW ANTISEPTIC DERMIC.

"LOSOPHANE" (Tri-iodo-meta-cresylic acid)—



—is the name given to a new antiseptic dermic obtained by the action of iodine upon oxy-toluylic acid in the presence of alkali. It contains approximately 80 per cent of iodine, and forms white needles of a melting-

point of 121.5C [250.7 F] ; it is easily soluble in ether, benzene, or chloroform, but difficultly in alcohol. At 60°C [140 F] fatty oils dissolve it readily.

Dr. E. SAALFELD of Berlin has recently experimented with losophane in the treatment of various cutaneous affections, and claims to have obtained in certain cases, particularly in dermatoses of *parasitic* origin, some very encouraging results. The medicament was employed either in solution or in ointment,—according to the following formulas (*Ther. Monatsh.*) :

- Losophane..... 1 part.

Alcohol.....75 parts.

Distilled Water.....25 parts.

Externally!
- Losophane.....1-3 parts.

Lanolin.....80 parts.

Vaselin.....20 parts.

Externally !

The treatment with the new medicament was the most efficacious in tinea tonsurans, in pityriasis versicoloris, and in scabies. It also gave satisfactory results in prurigo, in a number of cases of chronic eczema with thickening of the skin, in sycosis, and in acne. Its antipruritic action was very manifest in the above-mentioned affections, while in a few cases of idiopathic cutaneous pruritus and of urticaria, this was much less pronounced. In the cases of psoriasis and of syphilitic chancre the losophane had no curative effect.

The new dermic is contra-indicated, according to the author, in all acute inflammatory diseases of the skin, where it is very apt to act as an irritant even when employed in very feeble concentration.

MERCURY BI-CHLORIDE IN MALIGNANT NEOPLASMS.

Dr. R. C. LEES, of Glasgow, reports (*Lancet*) on the use of parenchymatous injections of MERCURY BI-CHLORIDE in three cases of inoperable new-growths.

The first case was one of sarcoma, on both sides of the neck, which had given rise

to such severe dyspnœa that tracheotomy had to be performed. However, after the operation the larger tumor of the two (on the left side) steadily increased in size, and the patient begged to have something more done for him. Recalling Dr. Russell's theory as to the cause of cancer being due to a fungus, and thinking of the relationship between carcinoma and sarcoma, it struck the author that he might use an injection of mercury bi-chloride in olive oil, such as he was using at the time in cases of pneumonic phthisis. Accordingly, he slowly injected 20 minims [1.25 grammes] of a 1:2000 oily solution slowly into the very centre of the large tumor, after first moving the needle freely from side to side ; then, withdrawing the needle carefully and placing the fingers on the little needle-wound, a piece of carbolic plaster was placed upon it. The hypodermic needle used was made to fit an ordinary hypodermic syringe, and had a solid point like a ordinary sewing needle but with several holes at the side so that the oil could be diffused through the tissue with less danger of its being thrown into the circulation.

Within two days after the injection, the shrinkage of the tumor was very marked ; but this highly favorable effect did not continue longer than three or four days, when to all appearance, it ceased. A second injection was then given, eighteen days after the first ; but unfortunately it was twice as strong as the first,—that is, 1:1000, a strength which the author was then using with benefit in the intra-thoracic injections in phthisical cases. This occasioned great swelling and acute inflammation ; and the doctor who had charge of the case during the author's absence in the country, not knowing what had already been done for the patient, applied leeches on the part and then poulticed. Suppuration set-in, and the patient died from sheer exhaustion, grateful at the same time for the five weeks' relief and comparative comfort which had been given him.

While this case was under observation, the same line of treatment was adopted in two cases of carcinoma of the mamma, where ulceration was present in both; but in one, most markedly,—having a crater-like depression in the centre, as is often observed in advanced cases of carcinoma in that region. The plan in those two cases was to cleanse a small part of the surrounding healthy skin with an oily solution of bi-chloride (1 in 1000) and menthol (12 per cent). The part was then wiped nearly dry, and the needle passed in from this spot into the thickest part of the growth. The needle was moved about freely, as in the sarcomatous case, and twenty minims [1.25 c.c.] of the oil injected (1 in 2000), while the after-treatment was the same as described above. This was done twice a week for three weeks with the greatest success.

In conclusion, Dr. L. remarks that what had been done in the three cases taught him, even although not one of them had been brought to a successful termination, that a powerful check, if not a complete remedy, existed in the injection of bi-chloride of mercury in olive oil; and he recommends to anyone holding a hospital appointment, a trial of the above-mentioned treatment, where, under more favorable circumstances, proper observations of the cases could be taken and measures thoroughly carried through.

MYRTLE EXTRACT AS AN ANTIDIABETIC.

Dr. R. WEIL, of Berlin, claims to have obtained excellent results in three cases of diabetes by the administration of pills each containing 12 centigrammes [2 grains] of MYRTLE EXTRACT (corresponding to 1 gramme [15 grains] of the dry leaves). The patients took at first 3 of these pills daily; then every three days the daily dose was increased by three pills, until as many as 15 were being taken a day, in three installments. The latter dose, which is reported always to have been well borne, sufficed to

cause the glycosuria to completely disappear in two of the patients in three months; in the third case, the quantity of sugar in the urine, which, when the treatment was begun, was 3.12 %, fell to 0.14 % under the influence of the treatment.

It should be added that the patients were subjected to a mitigated antidiabetic regimen.

NERVE-SUBSTANCE HYPODERMICALLY IN INSANITY.

Dr. A. CULERE reports (*Gaz. Méd. de Paris*) on his experiments with nervous transfusion in the insane. The method consists in the subcutaneous injection of nerve-substance. For this purpose the gray cortical substance of the brains of freshly-killed sheep is used, and macerated for twenty-four hours in twice its weight of pure glycerin, and the product then diluted with an equal part of boiled water and filtered. The finished preparation is a clear colorless fluid. In the author's cases it was renewed every week.

The treatment with nerve-substance was applied in 14 cases of insanity of the most various forms. The injections consisted of 4 grammes [1 fl. dr.] of the fluid; they were made into the loin every other day.

The experiments showed that nervous transfusion is very well borne by debilitated and even tuberculous insane patients, and almost immediately improves the nutritive functions. The first noticeable effect is a considerable increase in appetite, which occasionally is so great that the patients cannot satisfy themselves with eating. This action is of special value in the insane and in such patients as systematically refuse all nourishment.

The tonic influence of the injections was found to be a very prompt one: the muscular weakness disappears very soon, the bodily weight increases, and the organic functions are regulated. This improvement in nutrition is generally followed by an improvement in the mental condition.

PYOKTANIN IN "BISKRA BUTTON."

Dr. A. ZOUBOW, a Russian military surgeon, has treated with PYOKTANIN 87 soldiers belonging to the army at Merv (Turkestan) and affected with "Biskra button," a species of endemic ulcer extremely prevalent in that region. The results obtained are pronounced very favorable and superior to those of all the other methods of treatment known. The author proceeded as follows (*Sem. Méd.*):—

After having detached the scabs, he washed the ulcer with a solution of corrosive sublimate, dried it carefully, then bathed it with a 5% alcoholic solution of pyoktanin, by means of a pledget of cotton. According to its location, the ulcer was then covered with tarlatane or cotton, or left uncovered.

Sometimes a single application sufficed for the cure. As a rule, the ulcer became covered with a thin scab which fell off after five or six days leaving behind it a smooth pigmented scar. Occasionally, a thicker and soft scab formed; the edges of the ulcer became tumefied, and pressure brought forth a few drops of pus. In these cases the doctor removed the scab, made a new application of the pyoktanin, and continued thus until complete cicatrization of the wound was obtained.

Sometimes relapses set-in: the wounds already cicatrized opened again; but they all eventually healed definitively under the influence of new applications of the anti-septic.

THIO-SIN-AMINE IN LUPUS.

THIO-SIN-AMINE (Allyl-sulpho-carbamide; Allyl-sulpho-urea; Rhodalline)— $C_3H_5 \cdot NH \cdot NH_2 \cdot CS$ —is obtained from essential oil of mustard by the action of ammonia. It forms colorless, odorless crystals of a bitter taste, melting at about $70^\circ C$ [$158^\circ F$], and easily soluble in water, alcohol, or ether.

At the recent International Dermatological Congress Dr. H. v. HEBRA, JR., of Vienna reported the results of his experience with subcutaneous injections of thio-sin-

amine in a number of cases of lupus.—15 to 20% alcoholic solutions of the medicament were employed, and 0.2 cubic centimetre [3 minims] of the liquid, gradually increased, injected into the back 2 or 3 times a week. These injections provoked no general reaction, save occasionally somewhat accelerated respiration, never any alarming symptoms; on the other hand, a distinct local reaction set-in after a few hours—rubescence, swelling and tension of the skin of the lupous areas.

As a rule, the patients experienced a sensation of heat and of tension in the affected parts; but this disappeared soon. The urine was augmented in quantity, the patients voiding on the day of the injection 200 to 500 cubic centimetres [$\frac{2}{3}$ -1 pint] more than usual, without anything abnormal being observed with the kidneys themselves; the urine contained neither albumin nor formed elements. On the other hand, the injections determined an improvement in the general condition; the appetite was augmented, and the bodily weight increased.

Locally, a few injections of thio-sin-amine sufficed to change the aspect of the lupus: the nodosities became smaller, the diseased tissues collapsed; in ulcerated cases, the ulceration deterged rapidly, the edges became flat, and the ulcerated parts healed in a few weeks.

In the case of a boy with extensive lupus of the lower extremities and immobility in consequence of cicatricial contracture, the cicatrices were softened so that the limbs again became movable; a large number of lupous patches healed over, but numerous lupous infiltrations were still visible in the periphery of the healed plaques. In the case of a 50-year old lady with inveterate extensive lupus of the face and strong ectropion of one eyelid, the large ulcerations were cicatrized, the prominent lupous infiltrations flattened down, and the ectropion considerably diminished. In the other cases, too, distinct improvement was observed

corneal opacities cleared up, tuberculous glands diminished in size, etc. However, syphilitic adenitis was not influenced by the thio-sin-amine injections.

Although in none of the author's cases a perfect cure was obtained, still the manifest amelioration obtained in all, certainly makes the remedy worthy of further trial.

TROPA-COCAINE ; A NEW LOCAL ANÆSTHETIC.

In a paper read at the recent annual meeting of the British Medical Association, Dr. A. P. CHADBOURNE reported the results of his investigation of benzoyl-pseudo-tropeine—called for short "TROPA-COCAINE," or "Trop-sin," an alkaloid recently isolated by Giesel from a Java coca-plant.

From the presence of the new alkaloid in a species of coca-plant, it was expected to resemble cocaine in physiologic action; but, on the other hand, its chemical constitution pointed to a physiologic action similar to that of atropine. Actual experiment showed that it is a powerful local anæsthetic, resembling, but not identical in local action with, cocaine. In the eye it causes neither the ischæmia characteristic of the so-called "true anæsthetics" (cocaine, for instance), nor the marked irritation and hyperæmia of what LIEBREICH calls "anæsthetica dolorosa"; it is physiologically a connecting link between the two classes.

The most important differences between the action of tropa-cocaine and cocaine on animals, are said to be the following:—

1.—Tropa-cocaine is less than half as toxic as cocaine.

2.—The depressing action both on the cardiac motor ganglia and on the cardiac muscle, particularly the latter, is much greater with cocaine.

3.—Local anæsthesia, both of the eye and of the skin, is much more quickly complete with tropa-cocaine, and is possibly of longer duration.

4.—Slight hyperæmia is occasionally

present, in the case of tropa-cocaine, but speedily disappears; whilst with cocaine only ischæmia is observed.

5.—Mydriasis is usually absent, but always seems to be less than after the use of cocaine.

6.—Solutions of tropa-cocaine are moderately antiseptic, and retain their strength for at least two or three months; cocaine solutions frequently begin to lose their activity when only three or four days old.

—Prof. SCHWEIGGER of Berlin, after several months' use of tropa-cocaine at his clinic, makes the following comparisons between it and cocaine:—Tropa-cocaine hydrochlorate causes complete anæsthesia more quickly than a cocaine solution of the same strength. This anæsthesia does not last as long as that produced by cocaine, but a drop or two of the solution can be added from time to time, and complete anæsthesia thus kept up as long as is necessary.

Mydriasis was occasionally seen, but only in slight degree. No ischæmia was present; on the contrary, in a few cases there was very slight congestion for a few seconds. A few patients spoke of slight smarting, but this disappeared almost immediately and was hardly greater than that from distilled water. Both of these symptoms are much less when the tropa-cocaine has been dissolved in physiological salt solution— $\frac{6}{100}$ % aqueous solution of pure sodium chloride—instead of distilled water.

No harmful symptoms of any kind were seen, and in most cases tropa-cocaine seems to be as good—in some cases better—than cocaine. For the extraction of foreign bodies from the eye tropa-cocaine is preferable to cocaine because of its quicker action, and iridectomy has been performed in less than two minutes after one or two drops of a $\frac{3}{100}$ % tropa-cocaine solution had been put upon the eye, and without pain being felt by the patient.

Dr. SILEX, first assistant to Prof. Schweigger, has used tropa-cocaine in his practice

and has obtained similar results. He has performed tenotomy in less than half a minute after applying a 3 % solution, and the operation was painless. In all cases a 3 % solution was used; and whether a weaker solution would give as good, or a stronger better results, is yet to be proved.

It is to be hoped that tropa-cocaine will soon be given a trial in other than ophthalmic work, and for actual use the synthetically prepared hydrochlorate or tropa-cocaine is to be recommended, according to the author of the paper.—(Tropa-cocaine is not as yet on the American market.)—

PRACTICAL HINTS

ON METHODS IN THERAPY, PHARMACY, ETC.

HIGH TEMPERATURE AS A CURATIVE OF WOUNDS.

As is known, the complete removal of tissue invaded by tubercle by means of instruments, is in most cases a matter of difficulty, and the surgeon is obliged to supplement cutting by the application of caustics such as zinc chloride or of the thermo-cautery; but even then tuberculous nodules may be left and disappointment result.

M. FÉLIZET of Paris (according to the French correspondent of the *Lancet*) recently gave a trial to a blowpipe flame giving a temperature, as tested by the pyrometer, of 1500° to 1600° C [2732 to 2912 F]. The blowpipe is fed with a mixture of one-third air and two-thirds petroleum. With this flame the morbid spots on the surface of the operation wound are "licked," so to speak, for a few seconds. The tissue immediately shrinks, the blood coagulates, but there is neither charring nor hæmorrhage. In the case of resection of the knee-joint, a forty seconds' contact of the flame suffices.

M. Félizet has derived good results in thirty-eight cases, which comprised excision of the knee, hip, and elbow-joints, and the treatment of tuberculous abscesses.

M. NÉLATON states that he operated on two cases of cancer of the os uteri, the operation consisting of scraping, followed by the application of the flame yielded by the gas cautery invented by his illustrious father. By this means recurrence was, in both instances, long delayed.

M. Félizet reminds us that the thermo-cautery at a dull-red has a temperature of 700° C [1292 F], and at a white one of 1400° C [2552 F]. Charring of tissues occurs at these temperatures, which is not the case with his blowpipe flame at 1500° to 1600° C.

M. Morv claims for the thermo-cautery at a white heat, that held at a certain distance from a wound-surface, it produces a kind of erection of the granulations and brings about a more rapid cicatrization. He believes that heat influences the vitality of the tissues, and that the destruction of the germs which infest them is altogether a subsidiary process.

HEMORRHOIDS ;—NEW TREATMENT.

Dr. AGHINA, of Hoorn (Holland), recommends the following treatment of hæmorrhoids (*Sem. Méd.*) :—

To the point of a female catheter is fixed a baudruche skin in the form of a condom, and to the other end of the catheter is adapted a rubber tube provided with a cock. After having carefully emptied the rectum by means of enemata and a dose of magnesium citrate, the patient is put into bed for several hours. The catheter is then introduced into the rectum in such a manner that the baudruche skin passes beyond the internal sphincter, the membranous pouch is insufflated, and the cock closed.

The dilated veins are thus compressed by the distended baudruche skin, and, according to Dr. A., soon resume their normal

size, provided the compression be maintained long enough.

This manœuvre ought to be repeated after each stool, and the patient ought to stay in bed at least for a fortnight.

Dr. A. claims to have obtained excellent results with this procedure, and does not hesitate to dissuade, in the treatment of hæmorrhoids, all surgical intervention which might not be justified by the urgency of the case.

MALIGNANT ENDOCARDITIS.

According to Dr. TAYLOR (*Brit. Med. Journ.*), the existence of a murmur, in endocarditis, is chiefly of value in those cases in which previous cardiac disease is not known to have been present. In the large proportion of cases in which chronic endocarditis takes on malignant properties, distinctive characters could only be looked-for in the appearance of murmurs in connection with valves previously unaffected, or in a change in the quality or character of already existing murmurs; the evidence would be much stronger in this direction when the valves on the right side were those freshly implicated.

A change in the character or in the intensity of the murmur is not very often observed; occasionally it may acquire a musical pitch, but this would be by no means conclusive of the supervention of this form of endocarditis, and the chordæ may be ruptured without the murmur assuming a musical character. Occasionally there is no cardiac murmur. Pyrexia is a fairly constant symptom, the temperature generally being of a remittent type, high in the evening and falling to nearly normal in the morning; it is usually regular, unless complications should supervene, but not infrequently the heart-failure or cerebral symptoms are so prominent, that little or no attention is paid to the temperature-chart.

The occurrence of embolism is an important

feature and should always be carefully looked-out-for in a suspected case. The inflammatory lesions (whether due to embolism or merely septic, is a moot point) most frequently associated with malignant endocarditis, are nephritis, optic neuritis, and suppurative meningitis.

Lastly, the author attaches much value to the existence of anæmia, which is often very pronounced, especially when the valves on the right side of the heart are affected.

SPINA BIFIDA TREATED BY A NEW OSTEOPLASTIC OPERATION.

Dr. BOBROFF, of Moscow, reports a case in which a new osteoplastic operation was performed for the cure of a myelo-meningocele in the sacral region of a boy, aged 8, who had suffered since birth from incontinence both of urine and fæces. After removal of a portion of the skin covering the tumor, and excision of the whole of the sac, the cleft in the bone which corresponded to the back of the third piece of the sacrum and readily admitted the forefinger, was closed by a piece of bone taken from the crest of the right ilium. This fragment, which measured (according to the *Brit. Med. Journ.*), about $1\frac{1}{4}$ inch in length, $\frac{3}{4}$ inch in breadth, and a little less than $\frac{1}{2}$ inch in thickness, was completely separated from the crest of the ilium and from the gluteus maximus, but retained its attachment to the erector spinæ. After the osseous margins of the vertebral cleft had been cut away, the displaced portion of bone was fixed in its new position by sutures, the part covered by periosteum being directed towards the interior of the spinal canal, and the raw spongy surface backwards towards the external wound. The results of this operation seem to have been very satisfactory. Notwithstanding a profuse discharge of cerebro-spinal fluid, which lasted for several days, the patient made a good and uninterrupted recovery. At the end of the second month

the author made-out that there was complete consolidation of the transplanted fragment of bone with the sacrum. After an interval of three months the boy had complete control over the contents of the rectum, but, although there was no longer any nocturnal incontinence of urine, was unable to restrain the flow from the bladder whilst in the erect position. In conclusion the author suggests that it might be possible in cases of spina bifida in the upper lumbar or dorsal region, to close the vertebral cleft by transplanting in a similar manner a portion of bone cut away from a rib, but left attached to the soft parts.

LOSS OF INTRA-OSSEOUS SUBSTANCE;—ITS IMMEDIATE RESTORATION WITH THE AID OF ANTISEPTIC SUBSTANCES.

In a paper read at a recent meeting of the *ACADÉMIE DES SCIENCES*, Paris, Drs. S. DUPLAY and M. CAZIN (*Sem. Méd.*) report that they have tried to obtain immediate repair of experimentally produced losses of intra-osseous substance, by using for a definitive plugging the different substances employed in daily practice—such as cotton, gauze, sponges, catgut and silk. Their experiments were made on 59 adult animals, 30 dogs and 29 rabbits. In a series of 14 experiments, where pieces of sponge sterilized by heat had been definitively left in osseous cavities, there was no failure, and by sacrificing the animals at stated periods, it was possible to follow up the reparative process. It was observed that, five days after the tamponade, the pieces of sponge were already completely invaded in their interior by numerous cellular elements; this cellular reaction soon terminated in the formation of highly vascular new tissue throughout the entire extent of the spongy network, whose meshes disintegrated little by little and soon occupied but an extremely small space in the newly-formed tissue which completely replenished the loss of substance. Later-on, when the osseous reparation was quite perfect, the débris of the pieces of

sponge were no longer represented in the microscopic sections save by some spiculæ destined without doubt to persist indefinitely without necessarily giving rise to any inconvenience.

Gauze sterilized by heat and cat-gut gave equally good results; however, with cat-gut certain difficulties were met-with, resulting, first of all, from the trouble in getting perfectly aseptic cat-gut—because we are compelled to content ourselves with chemical means of sterilization; secondly, perhaps also from the aptitude of that body to afford a medium of culture suitable to the multiplication of micro-organisms, which, in the best conditions, may thus be introduced into a wound.

Silk and cotton sterilized by the autoclave, also gave excellent results as regards immediate result; but they little favor the penetration of the cellular elements—the cotton becoming encysted in some manner and thus acting as a foreign body, while the silk tears in time. To repeat, the gauze and especially the sponge appeared to give results far superior to those obtained with the other substances employed.

In view of the success of these experiments on animals, it was hoped that this mode of treatment of osseous cavities would be equally successful in man for the reparation of the sometimes enormous osseous cavities resulting from scooping out diseased tissues in cases of traumatic, spontaneous, tuberculous, or syphilitic osteomyelitis; and it was found that when it is possible to completely scoop out the walls of these pathologic cavities and to go freely beyond the limits of the morbid tissues, the results are almost always the same as in the experiments on animals; but in cases (which are very frequent) where asepsis of large osseous cavities is difficult to obtain, it is considered necessary, before practicing immediate reparation by means of definitive plugging, to first resort to provisional tamponade, for the purpose of producing disinfection and complete asepsis of the cavity.

PHTHISICAL VOMITING ;—TREATMENT.

It is known that in many phthisical subjects vomiting occurs—particularly after the ingestion of food—the frequent repetition of which, by compromising the already very defective nutrition, accelerates the progress of the pulmonary affection.

According to Dr. S. HABERSHON, physician to the Royal Hospital for Diseases of the Lungs, London, and a practitioner who has had a large experience in the treatment of pulmonary affections, the best means to use against phthisical vomiting are the following :

The first measure to take consists in regulating the diet of the patient. Only food which is easy of digestion should be given, and everything avoided that may irritate the gastro-intestinal mucous membrane—condiments, vinegar, acid, and concentrated alcoholic beverages.

When the vomiting is frequent and intense—as in cases where there is an irritation of the pulmonary branches of the pneumogastric—a condition essential to the success of the treatment consists in maintaining the patient in the recumbent position and giving him nothing but liquid food. Besides, to calm the gastric irritability, River's potion (*Liquor Sodii Citratis*, N. F.), or bismuth sub-nitrate with sodium bi-carbonate and a little opium or morphine, should be prescribed. It is well to remember that the vomiting, due to irritation of the pneumogastric nerve, as a rule improves and ceases of itself as the pulmonary affection progresses.

Vomiting in phthisical patients often is, as is known, of mechanical origin,—that is to say, it is provoked by the violence of the efforts at coughing. In these cases the treatment ought to be directed specially against the hyperexcitability of the pharyngeal and laryngeal mucous membranes. To combat the pharyngeal irritation, Dr. H. uses with great success a gargle of potassium bromide and borax, to which is added

a small quantity of opium. When there are any tuberculous ulcers in the pharyngeal cavity, they should be dusted two or three times daily, by means of an insufflator, with a mixture of iodoform, borax, and morphine, which is said to procure great relief as a rule.

The violence of the cough which provokes the vomiting is often due to the difficulty which the patients experience in expectorating very viscuous sputa. To liquefy the bronchial secretion, potassium iodide may be administered with advantage, in doses of 20 to 30 centigrammes [3 to 4½ grains] a day, with which may be combined ammonium carbonate.

In the cases where the hyperexcitability of the laryngo-bronchial mucous membrane plays the principal part in the production of the cough and the vomiting, Dr. H. obtains excellent results from inhalations of the following mixture :

Oil Eucalyptus.....	4 parts.
Compound Tincture Benzoin.....	6 “
Menthol (or Thymol).....	2 “
Chloroformized Alcohol (10 per cent.)..	3 “

A little cotton is impregnated with 10 drops of this mixture and placed into the oro-nasal mask which the patient uses for the inhalations.

Finally, when the vomiting is provoked principally by the irritability of the stomach, the treatment will vary according to the kind of gastric affection present (acute or chronic catarrh, atrophy of the gastric mucous membrane, tuberculous or non-tuberculous ulcerations). But, whatever be the nature of the gastric disease, an excellent means, one which very often prevents or arrests the vomiting survening after the ingestion of food, consists in the administration of a few drops of a dilute solution of caustic potash with Sydenham's laudanum (*Vinum opii*, U. S. P.). The potash in all probability acts merely by neutralizing the excessive acidity of the contents of the stomach.

TREPHINING FOR MENINGITIS.

At a recent meeting of the Section of Surgery of the ROYAL ACADEMY OF MEDICINE in Ireland, Mr. J. S. McARDLE reported a case (*Dubl. Journ. Med. Science*) of traumatic meningitis, in which good results were obtained from trephining. The patient, a coal porter, aged forty, had fallen into the hold of a vessel, striking the left side of the head and receiving a wound over the left eye. He was unconscious for a few hours, but returned home the same evening. On the third day after the injury, he was able to resume his occupation. There was no evidence of any injury to the right side of the head. The patient continued at his hard work for a fortnight, when he felt disinclined to work, had some sickness of the stomach, and noticed his left hand weak; during the evening of that day he experienced severe pain in the top of the head, and the weakness of the arm increased; and the next day the leg became powerless. Three days later, he suffered from severe convulsive attacks.

As death appeared imminent from asphyxia, a small disc of bone was removed from the skull on the right side, over the superior extremity of the fissure of Roland. After the removal of the bone, the dura mater projected into the wound, looking very dark; upon incising it, a greenish, serous fluid gushed out, and on raising the membrane, after detaching it three-fourths of the way round, a clot was found firmly adhering to its inner surface. This was scraped away; and after thoroughly irrigating the parts with a solution of boric acid, the dura mater was sutured, a medium-sized drainage-tube laid across the wound, and deep sutures passed to fix the scalp flaps.

From this time on, recovery was uninterrupted, and eight days after the operation, the patient was about, the wound being soundly healed. One month after the operation the man returned to work, and has remained in perfect health ever since.

These observations certainly favor the view that trephining may do good in some forms, at least, of meningeal inflammation.

TRIFACIAL NEURALGIA;—SURGICAL TREATMENT.

Dr. CHALOT reports a case of trifacial neuralgia in a man, aged 66, which had lasted for twenty years, having resisted all kinds of treatment, and upon which he had carried out the following operative measures (*Brit. Med. Journ.*):

1.—Exposure of the terminal part of the infra-orbital nerve.

2.—Excision of the superior maxillary nerve and the spheno-palatine ganglion in the pterygo-maxillary fossa by the operation of LOSSEN H. BRAUN. Two incisions—one vertical and the other horizontal—were made in the malar region, and the malar bone and zygomatic arch exposed; this bone was then sawn through in front and behind, and a segment thrown downwards. By this means the upper part of the pterygo-maxillary fissure could be explored with a sound. The internal maxillary artery was ligatured and structures in the fissure separated, and then the nerve was taken up with a blunt hook as it lay in the fossa, and was divided in front and behind this ganglion. The segment of nerve thus separated was drawn out and removed, and then, after stoppage of hæmorrhage, the bone was replaced and fixed in position.

3.—Drawing out of the infra-orbital nerve from the incision made at first.

4.—Section of the inferior dental nerve and the lingual nerve. For this operation the lower jaw is bared $1\frac{1}{2}$ centimetres [$\frac{3}{8}$ inch] above the angle, and a trephine applied and the bone perforated; the two nerves are now pulled, and a piece removed from each.

5.—Division of the auriculo-temporal nerve. The results of this operation were good, and two months afterwards there had been no return of the neuralgia.

MAXIMUM DOSES FOR ADULTS

ACCORDING TO THE NEW ITALIAN PHARMACOPŒIA.

MEDICAMENT.	SINGLE.		DAILY.	
	Grammes =	Grains or Minims.	Grammes =	Grains or Minims.
ACID, ARSENIOS	0.005	$\frac{1}{12}$	0.015	$\frac{1}{4}$
ACONITE ROOT	0.1	$1\frac{1}{2}$	0.4	6
APO-MORPHINE HYDROCHLORATE	0.01	$\frac{1}{6}$	0.05	$\frac{3}{4}$
ATROPINE, SULPHATE	0.001	$\frac{1}{80}$	0.003	$\frac{1}{20}$
BELLADONNA (Leaves and Root)	0.15	$2\frac{1}{4}$	0.4	6
CANTHARIDES	0.05	$\frac{3}{4}$	0.15	$2\frac{1}{4}$
CHLORAL HYDRATE	2.0	30	6.0	90
COCAINE HYDROCHLORATE	*0.2	3	*1.0	15
CODEINE	0.1	$1\frac{1}{2}$	0.3	$4\frac{1}{2}$
DIGITALIS POWDER	0.2	3	1.0	15
FOR INFUSION	0.4	6	2.0	30
EXTRACT, ACONITE ROOT, Hydro-alcoholic	0.03	$\frac{1}{2}$	0.12	2
" BELLADONNA, Hydro-alcoholic	0.03	$\frac{1}{2}$	0.1	$1\frac{1}{2}$
" CONIUM	0.05	$\frac{3}{4}$	0.2	3
" COLOCYNTH	0.05	$\frac{3}{4}$	0.2	3
" DIGITALIS, Hydro-alcoholic	0.1	$1\frac{1}{2}$	0.3	$4\frac{1}{2}$
" HYOSCYAMUS, Hydro-alcoholic	0.2	3	0.6	9
" LETTUCE	0.5	$7\frac{1}{2}$	1.5	23
" NUX VOMICA, Alcoholic	0.05	$\frac{3}{4}$	0.2	3
" OPIUM (17 % Morphine)	0.1	$1\frac{1}{2}$	0.3	$4\frac{1}{2}$
GAMBOGE	0.3	$4\frac{1}{2}$	0.9	$13\frac{1}{2}$
GOLD AND SODIUM CHLORIDE	0.05	$\frac{3}{4}$	0.2	3
HYOSCYAMUS LEAVES	0.4	6	1.2	18
IODINE	0.03	$\frac{1}{2}$	0.12	2
IODOFORM	†0.4	6	†2.0	30
IRON ARSENIATE	0.01	$\frac{1}{6}$	0.05	$\frac{3}{4}$
LEAD ACETATE	0.05	$\frac{3}{4}$	0.25	$3\frac{3}{4}$
MERCURY BI-CHLORIDE	0.02	$\frac{1}{3}$	0.1	$1\frac{1}{2}$
" BIN-IODIDE	0.02	$\frac{1}{3}$	0.1	$1\frac{1}{2}$
" PROTO-IODIDE	0.05	$\frac{3}{4}$	0.2	3
MORPHINE HYDROCHLORATE	0.02	$\frac{1}{3}$	0.1	$1\frac{1}{2}$
NUX VOMICA	0.1	$1\frac{1}{2}$	0.3	$4\frac{1}{2}$
OIL, CROTON	0.05	$\frac{3}{4}$	0.15	$2\frac{1}{2}$
OPIUM	0.1	$1\frac{1}{2}$	0.5	$7\frac{1}{2}$
PILOCARPINE HYDROCHLORATE	0.02	$\frac{1}{3}$	0.06	1
PODOPHYLLIN	0.05	$\frac{3}{4}$	0.15	$2\frac{1}{4}$
SANTONIN	0.1	$1\frac{1}{2}$	0.3	$4\frac{1}{2}$

*This dose appears to be too large; in MERCK'S BULLETIN, Vol. II, p. 47, the maximum single dose is stated as being 0.15 gramme [$2\frac{1}{4}$ grains], the maximum daily dose, 0.5 gramme [$7\frac{1}{2}$ grains].

†The German Pharmacopœia gives 0.2 gramme [3 grains] as the maximum single dose, and 1 gramme [15 grains] as the maximum daily dose.

MAXIMUM DOSES FOR ADULTS.—Continued.

MEDICAMENT.	SINGLE.		DAILY.	
	Grammes =	{ Grains or Minims.	Grammes =	{ Grains or Minims.
SILVER NITRATE.....	0.03	½	0.15	2¼
SODIUM ARSENIATE.....	0.006	1⁄10	0.02	⅓
SOLUTION, MERCURY BI-CHLORIDE, Hydro-alcoholic, 1 in 1000, (Van Swieten's Solution)	20.0	300	100.0	1500
SOLUTION, POTASSIUM ARSENITE (Fowler's).....	0.5	8	1.5	24
STRAMONIUM LEAVES.....	0.1	1½	0.5	7½
STRYCHNINE NITRATE.....	0.005	1⁄20	0.015	¼
TINCTURE, ACONITE, 1 in 10.....	0.5	8	1.5	24
“ CANTHARIDES, 1 in 10.....	0.5	8	1.0	16
“ DIGITALIS, 1 in 10.....	1.5	24	5.0	80
“ IODINE, 8 in 100.....	0.3	5	1.0	16
“ LOBELIA, 1 in 10.....	2.0	32	6.0	96
“ NUX VOMICA, 1 in 10.....	1.0	16	3.0	48
“ OPIUM, 1 in 10.....	1.0	16	5.0	80
“ STROPHANTHUS, 1 in 20.....	1.0	16	3.0	48
VERATRINE	0.005	1⁄20	0.015	¼
WATER, BITTER-ALMOND, Distilled (1⁄10 % H CN)...	3.0	45	9.0	140
WINE, OPIUM, 1 in 10, (Sydenham's Laudanum)...	1.0	16	5.0	80

ETHER AS A MENSTRUUM IN CUTANEOUS MEDICATION.

In practice it is found that there are at least three distinct obstacles to the absorption of a medicine through the skin, — namely, the fatty secretion of the skin, the epidermis, and insolubility of the drug. According to Sir JAS. SAWYER, of Birmingham, ether is the best menstruum for the solution of many remedies for local use through the skin, because it is a good solvent of the active principles of many drugs, and it is a ready solvent of the fatty constituents of the sebaceous secretion of the skin (*Pharm. Journ. & Trans.*). In his opinion, an ethereal liniment supplies the most intimate application of a remedy to the bare dermal surface; the officinal plasters and alcoholic solutions of the active principles of drugs, are not scientific medicaments for enepidermic employment and percutaneous action, because they do not permit the absorption of their active ingredients by the skin. Chloroform though

answering very well for the purpose, is considered to have many disadvantages.

Dr. L. has thus far proposed and used for dermal employment ethereal tinctures of belladonna, of capsicum, of iodine, and of menthol.

GONORRHŒA AS A CAUSE OF HEART DISEASE.

Dr. His reports (*Berl. Kl. Woch.*) two cases of heart disease which he believes were the result of gonorrhœa. In neither was there a previous history of rheumatism, or any reason for considering the cardiac disease as being of rheumatic origin.

In the first case there had been no articular disease at any period of the cardiac affection. Septic thrombosis of the prostatic veins and pubic plexus resulted from an attack of gonorrhœa, and the next manifestation of the septic process was affection of the aortic valves, at first latent, but after intense emotion and a severe chill, assuming the characters of an ulcerative endocar-

ditis. Later-on, the condition developed into pyæmia, with septic emboli in internal organs, multiple hæmorrhages in these and under serous membranes, and interstitial inflammation of the cardiac muscle resulting in heart-failure and death.

The second case differed from the first in having joint-disease which was considered of septic origin, and in not having thrombosis of the prostatic veins,—though the latter point may have been overlooked at the autopsy.

OBESITY TREATMENT.

Prof. DUJARDIN-BEAUMETZ treats obesity in the following manner:

Every morning the body is sponged with tepid water to which some cologne water has been added, after which energetic dry friction and massage of the body and of the limbs are practiced. A wineglassful of some laxative water (Rubinat, Carabana, Villacabras, etc.) is taken every morning, and after each meal, a tablespoon of a 6:100 solution of potassium iodide in distilled water. The following regimen is to be strictly followed:

Breakfast should be taken at about 8 o'clock, and should consist of 20 grammes [5 drs.] of well-baked and crisp bread and 1 chocolate tablet. The *second meal*, at about noon-time, is to be constituted of 100 grammes [$3\frac{1}{4}$ oz.] of meat or 2 eggs, 100 grammes of green vegetables or salad, 15 grammes [$\frac{1}{2}$ oz.] of cheese, 50 grammes [$1\frac{5}{8}$ oz.] of bread, and a moderate quantity of fruit. A glass and a half of white wine is also to be taken, diluted with Vichy water. The *third meal*, at about 7 o'clock in the evening, should consist of 100 grammes [$3\frac{1}{4}$ oz.] of meat, 100 grammes of green vegetables, 15 grammes [$\frac{1}{2}$ oz.] of salad or cheese, 50 grammes [$1\frac{5}{8}$ oz.] of bread, fruit in moderate quantity, and drink as at noon; soup is to be avoided.

No drink should be taken between meals, and the use of coffee, tea, brandy and liq-

uors, is to be abstained-from. Finally, exercise progressively increased and with increasing zeal completes the treatment.

ANTISYPHILITIC TREATMENT;—PROPER DURATION.

This is one of the most interesting and, as is well-known, most disputed questions of medical practice. The physician is often puzzled in making a proper choice, and in the end, and after much hesitation, generally decides upon what in his experience has been the mean duration of treatment. But how often do we see patients who, after having been under medical supervision for a length of time, abandon the doctor to treat themselves—believing to have a sufficient experience to permit them to do so, and thus destroy their constitution by a too-prolonged use of mercurials when the latter are no longer indispensable, yea, often even harmful!

In a communication to the Paris SOCIÉTÉ DE THÉRAPEUTIQUE, Dr. BONTEMPS of Saumuz, supported the doctrine of Prof. FOURNIER who asserts that in no case can the duration of the antisiphilitic treatment be fixed at less than 3 or 4 years. As, at the same time, the patients ought to observe in the medication certain alternations and periods of repose or dishabituatio, Dr. B. has arranged the following table, a convenient vade-mecum for the practitioner:—

1st year:—

6 months of mercurial treatment,
3 months of potassium iodide,
3 months of repose.

2nd year:—

2 months of mercury,
5 months of iodide,
5 months of repose.

3rd year:—

2 months of mercury,
5 months of iodide,
5 months of repose and sulphur baths.

4th year:—

No mercury;
Potassium iodide, with intervals of
Repose and sulphur baths.

GATHERED FORMULAS.

124.—Creolin-Pearson in Influenza.

[L. RABENER—*Intern. K7. Rundsch.*]

—PILLS.—

Creolin-Pearson.....0.5 gramme [7½ min.].
 Tolu Balsam }
 Glycyrrhiza Extract } of each, a sufficient quantity.

Divide into 50 pills, and coat with collodion!—3-5 pills 4-5 times daily,—according to the severity of the case.

(According to the author, Creolin-Pearson is a true specific for influenza, particularly if administered early.—In children, it is employed in *suppositories*, each containing 0.05-0.1 gramme [$\frac{3}{4}$ -1½ min.],—2 or 3 daily.—For the bronchitis, laryngitis, and grippal pneumonia, besides the pills, *inhalations* of the vapor of hot water to which Creolin-Pearson has been added are recommended.)

125.—Quinine Salicylate in Influenza.

[BACELLI—*La Sem. Méd.*]

—CACHETS.—

Quinine Salicylate.....1.0 gramme [15 grains].
 Phen-acetin.....1.5 grammes [23 grains].
 Powdered Camphor.....0.2 gramme [3 grains].
 Kermes Mineral.....0.1 gramme [1½ grains].

Divide into 10 parts, and dispense in cachets!—4 or more daily, according to circumstances.

126.—Guaiacol in Phthisis.

[P. OLIVA—*Sem. Méd.*]

—MIXTURE.—

Guaiacol.....℥ XLV [3 gm.].
 Alcohol.....fl. ℥ x [30 gm.].
 Gentian Extract.....℥ ss [15 gm.].
 Coffee Extract, concentrated.....℥ i [30 gm.].
 Distilled Water...enough to make fl. ℥ x [300 gm.].

2-4 tablespoonfuls (equal to 0.3-0.6 gramme [4½-9 min.] of Guaiacol) a day.

127.—Ulcerated Chilblains.—(Treatment.)

[BROcq—*J. des Mal. Cut. et Syph.*]

—OINTMENT.—

Carbolic Acid.....1 gramme [15 grains].
 Lead Ointment.. }
 Lanolin..... } of each, 20 grammes [5 drams].
 Sweet-almond Oil.....10 grammes [2 fl. drs.].
 Lavender Spirits.....20 drops.

Apply 2-3 times daily.

128.—Lichen agrius.—(Treatment.)

[MONIN.]

—OINTMENT.—

Chloroform.....4 grammes [45 min.].
 Nitric Acid (fuming).....15 drops.
 Lard.....45 grammes [1½ oz.].

Apply 3 times daily!

(The author claims to have cured five cases of Lichen agrius, that had resisted all other treatment, in 10-35 days.)

129.—Anodyne in Dyspepsia.

[COUTARET—*Sem. Méd.*]

—MIXTURE.—

Chloroform Water.....300 grammes [10 fl. oz.].
 Colombo Syrup.....100 grammes [2½ fl. oz.].
 Cannabis-indica Extract.. 15 centigr. [2¼ grs.].
 Tablespoonful every half hour until relieved.

130.—Lichen planus, Acute.—(Treatment.)

[DUBREUILH and SABREZÈS—*Sem. Méd.*]

—OINTMENT.—

Corrosive Sublimate... 0.3 gramme [4½ grains].
 Salicylic Acid.....3.0 grammes [45 grains].
 Vaseline.....50.0 grammes [1½ ounces].
 Externally!

131.—Boric Acid in Burns.

[P. RECLUS.]

—OINTMENT.—

Boric Acid..... }
 Antipyrine..... } of each, 5 grammes [75 grains].
 Iodoform.....1 gramme [15 grains].
 Vaseline.....50 grammes [1½ ounces].
 Externally!

132.—Sodium Tellurate in Phthisical Night-sweats.

[G. SCHMIDT—*Medic. Revue.*]

—POWDERS.—

Sodium Tellurate.....0.25 gramme [3¾ grains].
 Peppermint-oil Sugar...5 grammes [75 grains].
 Divide into five powders!—One every evening.

133.—Kola in Chronic Infantile Diarrhœa.

[F. COMBEMALE.]

—MIXTURE.—

Kola Extract.....1 gramme [15 grains].
 Quince Syrup.....30 grammes [6 fl. drs.].
 To be taken within 24 hours, by the teaspoonful.

EDITOR'S NOTES.

OUR INSTITUTIONS.

A NEW PROFESSORSHIP IN JEFFERSON MEDICAL COLLEGE.

At a meeting of the Board of Trustees held on Wednesday, November 30th, 1892, Dr. G. E. de Schweinitz, on the unanimous recommendation of the Faculty, was elected Clinical Professor of Ophthalmology in the Jefferson Medical College.

At the time of his election, Dr. de Schweinitz was Professor of Ophthalmology in the Philadelphia Polyclinic and Lecturer on Medical Ophthalmoscopy in the University of Pennsylvania.

NEW YORK POLYCLINIC.

Dr. Florian Krug, Attending Surgeon to the German Hospital, was recently appointed Gynæcological Professor at the New York Polyclinic. Dr. Krug is a brilliant operator and will unquestionably prove a great addition to the school. Dr. W. H. Katzenbach was elected Professor of General Medicine; Dr. Andrew J. McCosh, Professor of Surgery; and Dr. Edward B. Dench, Professor of Otology.

CHICAGO COLLEGE OF PHYSICIANS AND SURGEONS.

Dr. Henry T. Byford has been elected to the Chair of Gynæcology in the College of Physicians and Surgeons, Chicago, to fill the vacancy made by the death of Dr. A. Reeves Jackson.

CORNER-STONE CEREMONIES OF THE N.-Y. POST-GRADUATE SCHOOL AND HOSPITAL.

The corner-stone of the large new building which the New-York Post-Graduate Medical School and Hospital is about to build at the northeast corner of Second avenue and Twentieth street, was laid on Nov. 30th.

The Rev. Mervin R. Vincent of Union Theological Seminary opened the exercises with prayer. Dr. D. B. St. John Roosa, President of the corporation, made a brief address and laid the corner-stone. In the copper box beneath it was deposited, besides the usual documents, newspapers, coin, etc. The meeting was then adjourned to the lecture room of the old building on the next block.

Here the principal address of the day was delivered by Dr. T. Gaillard Thomas. He described the origin of the school in 1882, and sketched its course since. It began with less than 100 students, and now numbers over 500. Its sole object, he said, was not only the instruction of physicians

who wish an enlarged knowledge, but also the creation of similar centres of learning in other cities of this country and England. It also undertook the training of young lecturers on medicine to fill vacancies in the medical colleges of the land.

—The new medical school and hospital is to be a five-story building of Indiana limestone and white brick. It will front 110 feet on Twentieth street and 90 feet on Second avenue. It will contain two clinical lecture rooms with anterooms for the preparation of patients and their examination in detail by one or more practitioners, an operating amphitheatre, and numerous small rooms for special study. It will accommodate 180 patients and 1,000 students.

MEDICAL REQUIREMENTS.—(Concluded.)

MIDDLE STATES.

ILLINOIS: Presentation of a *bona fide* diploma which must be indorsed by each member of the Board of Health, which thereupon shall issue to holder of said diploma the right to practice medicine and surgery. Non-holders of satisfactory diplomas can secure a similar certificate by passing a satisfactory examination in anatomy, materia medica, theory and practice, gynæcology, physiology, pathology, obstetrics, chemistry, surgery, hygiene, and medical jurisprudence,—80 per cent of correct answers being required. Fees: \$1.50 for indorsing diploma and issuing certificate; \$20 for examination in medicine and surgery, and \$10 in obstetrics.

MINNESOTA: Examination is required before the State Board of Medical Examiners at St. Paul. Candidates whose diplomas are more than five years old are considered "old practitioners" and are not required to obtain more than 35 per cent in anatomy and some of the other subjects, but their general average must be 65 per cent. It is further required that the applicant must have studied medicine at a regular medical college for three annual terms, each of which must be at least six months in duration. Examinations are held in January, April, July, and October. Failing at one examination, the applicant can present himself at the next appointed time. Fee \$10.

IOWA: Here is required the presentation of a *bona fide* diploma which must be certified to by the State Board of Health; fee \$2. This certificate must then be recorded in the county clerk's office; fee 50 cents. In the absence of a diploma the appli-

cant may present himself for examination before the examining board and thus secure a certificate. Fee \$10. Failing at the first examination a second one may be had within twelve months without an extra fee.

MISSOURI: Verification of a *bona fide* diploma by the State Board of Health, which shall then issue a certificate that must be recorded in the county clerk's office. In the absence of a diploma a certificate may be secured by taking an examination with the examining board of the state. The fee for registering certificate is \$1.

WEST MIDDLE STATES.

ARKANSAS: The presentation of a *bona fide* diploma for registration with the county clerk. Fee \$1.50. In the absence of a diploma the candidate may present himself for examination in medicine and surgery before the county board of examiners. Fee \$6.

NORTH DAKOTA: Information as to this state uncertain;—as a territory it had no specific requirements.

SOUTH DAKOTA: No information at hand.

NEBRASKA: Registration with the county clerk of a *bona fide* diploma or certificate of satisfactorily having passed some authorized examining board.

KANSAS: The receiving of a certificate from an authorized board of examiners appointed by the county societies.

ROCKY-MOUNTAIN STATES.

MONTANA: Presentation of a *bona fide* diploma to the State Board of Health which shall grant a certificate to the holder of said diploma. This certificate must be recorded by the county clerk. In the absence of a diploma, a certificate may be obtained by examination by the State Examining Board. Fee \$15.

WYOMING: Filing of diploma with the county Registrar of Deeds.

COLORADO: Presentation of *bona fide* diploma to State Board of Examiners which shall thereupon grant a certificate. This is to be filed with the county clerk. Fee for certificate, \$5; county clerk's fee, \$1. In the absence of a diploma, an examination before State board secures the necessary certificate. Examination fee, \$10; registration fee, \$1.

IDAHO: Registration of a *bona fide* diploma with the county clerk.

NEVADA: Registration of a *bona fide* diploma with the county clerk.

PACIFIC-COAST STATES.

CALIFORNIA: Presentation of a *bona fide* diploma

to the examining boards and, on acceptance, the payment of \$5 secures the right to practice in the State.

OREGON: The presentation and acceptance of a *bona fide* diploma to State Board of Examiners, or an examination before the said board, and the payment of a fee of \$3.

WASHINGTON: No information at hand relative to the requirements in this State.

TERRITORIES.

INDIAN TERRITORY: Examination before an authorized board of examiners and the registration of the certificate obtained, with the United States Indian agent who issues a legal permit to practice in the territory.

NEW MEXICO: The presentation of a *bona fide* diploma to the Territorial Board of Examiners, or the passage of a satisfactory examination before said board. In either case a certificate will be given, which must be filed with the county clerk. Examination fee, \$10.

ARIZONA: Presentation of a *bona fide* diploma from a college in good standing.

UTAH: No law regulating the practice of medicine.

ALASKA: No law regulating the practice of medicine.

OKLAHOMA: No information at hand.

* * *

As shown by letter received from a physician in Pennsylvania and published in the November number of this Journal, the published requirements and the actual facts do not exactly correspond. Any one observing defects in these requirements as published will confer a favor by communicating actual knowledge obtained by experience.—[Ed.]

* * *

It is interesting to note in this connection that since the institution of a State medical board in Virginia, which occurred January 1, 1885, five hundred and ninety-eight applicants presented themselves for examination before said board. Among this number were graduates from fifty-eight medical colleges. From forty-five of these colleges there were successful candidates, from thirty-three unsuccessful ones, before the State board.

Out of the total number examined 69.73 per cent were successful, 26.92 per cent failed to pass, and 3.35 per cent withdrew without completing the examination. This certainly is a poor showing for the medical colleges of our country, or else it represents a very high standard on the part of the Virginia State Board of Examiners.

NEW BOOKS.

A MANUAL OF PHYSICS: Being an Introduction to the Study of Physical Science. Designed for the use of University Students.—By WILLIAM PEDDIE, D.Sc., F.R.S.E. New York: G. P. Putnam's Sons; Lond.: Baillière, Tindall & Cox, 8 vo; 511 pp. Price, \$2.50.

This is a work which does not carry great interest for the physician as such. The ordinary text-books on physics are amply sufficient for the library of the medical student, in this line. But those, who for a particular purpose wish to look more deeply into physical science and yet do not desire to go into the subject to the extent of detail involved in works on special branches, may find this book of value.

The treatise at hand, though introductory, is not elementary in its treatment,—being designed specially for the university student. Its purpose, according to the preface, is, to present a "complete view of the essential unity and interdependence of the various branches" of physics, which the author maintains is not had by a study of independent special works.

The book is an apt generalization of more advanced physics, and covers much ground with its five-hundred-and-odd pages. It abounds in formulæ and diagrams explanatory of the text, and its typography and arrangement are excellent.

AMERICAN TEXT-BOOK OF SURGERY for Practitioners and Students. Edited by WILLIAM W. KEEN, M.D., LL. D., and J. WILLIAM WHITE, M.D., Ph. D.—Phila.: W. B. Saunders; 1892. Royal 8vo; pp. 1209—xx; illustrated. Sold by subscription only: cloth, \$7; sheep, \$8; half russia, \$9.

This work commences with the bacteriological consideration of surgical pathology. The various forms of micro-organisms that cause or influence surgical disease are concisely discussed, sufficient being given to place before the student a fairly good understanding of their part in the surgical problem.

The methods of staining and some good plates of the common forms of germs are also noticeable features of this section.

Next, the pathology of inflammation and repair are given in a much clearer manner than is found in most text-books devoted to surgery.

The introduction of tabular differential-diagnosis tables throughout the book, is a striking and commendable feature, and one which brings prominently to the minds of the student the leading facts to be remembered.

The section devoted to tumors is unusually short and incomplete. This is unfortunate, as students generally have great difficulty in acquiring satisfac-

tory knowledge upon this important department in surgery.

The surgery of the vascular system is both complete and well treated. The same is true in a general way of the osseous structures, although contusions and the common injuries of the bones, outside of fractures, are rather meagerly discussed. But that portion devoted to fractures is concisely and practically given in a manner equal to, if not better than, that which generally obtains in surgical treatises.

The surgery of the joints, especially from the tubercular standpoint, is brought fully abreast of the times and is presented in the same laudable manner that is so noteworthy a characteristic of the entire book.

The genito-urinary department is also worthy of notice, being as a whole quite well presented.

In many respects the omission of the writer's name from the specific section written by him may be a draw-back to the interest with which the student reads his surgery. Students often complain at such omissions and feel the loss of the personal quality which often yields interest when the subject in itself might not. On the other hand this suppression of the direct author may have given a more general and uniform character to the book.

There is no question that this treatise is fully up to the wants of the student, and in many respects more perfectly adapted to them than any surgery that has previously been issued.

The typography, etc. is good; the colored anatomical and other plates are well executed and highly instructive.

THE DIAGNOSIS OF DISEASES OF THE NERVOUS SYSTEM.—By CHRISTIAN A. HERTER.—New York: G. P. Putnam's Sons; 1892.

This volume is designed to aid the student and general practitioner in the recognition of the commoner forms of nervous disease. The subject is always an interesting one, *i. e.*, unless the student commences at once with one of the larger text-books. These larger books presuppose so much knowledge and demand so much time to master, that he soon wearies of the task before him. Let the student, however, commence with some work like the one before us: and the study grows more absorbing the further he advances. It encourages him to profounder inquiry and thus step by step the larger works are approached. Dr. Herter has given us a manual which will, by its simplicity and thoroughness, greatly aid the student to understand that most difficult of all branches of medicine, *viz.*,—neurology.

J. H. C.

BOOKS RECEIVED.

A MANUAL OF THE PRACTICE OF MEDICINE: Prepared especially for Students. By A. A. STEVENS, A.M., M.D., Instructor in Physical Diagnosis in the University of Pennsylvania, etc.—Phila.: W. B. Saunders. 8 vo.; 501 pp.; Illustrated. Price, \$2.50.

DISEASES OF THE LUNGS, HEART, AND KIDNEYS. By N. S. DAVIS, Jr., A.M., M.D., Professor of Principles and Practice of Medicine, Chicago Medical College, etc., etc. No. 14 in the Physicians' and Students' Ready-Reference Series.—Phila.: The F. A. Davis Co; 1892. 12mo; 359 pp. Cloth, \$1.25 net.

ON THE CHEMISTRY AND THERAPEUTICS of Uric Acid, Gravel, and Gout; being the Croonian Lectures for 1892—with additions. By Sir WILLIAM ROBERTS, M.D., F.R.S.—Lond.; Smith, Elder & Co., 15 Waterloo Place; 1892.

HYGIENIC MEASURES in Relation to Infectious Diseases. By GEORGE H. F. NUTTALL, M.D. Ph.D. New York: G. P. Putnam's Sons; 1892.

STATISTICAL TABLES to accompany the Superintendent's Report of the Johns Hopkins Hospital, for the year ending January 31, 1892.

ASIATIC CHOLERA. By MATILDA A. SCHULTZ, M.D.—Cincinnati, O.: H. Watkin; 1892. Price, 25 cts.

RECENT PAPERS.

AN OPERATION for the Radical Cure of Stricture of the Lachrymal Duct, with Description of a Stricturotomy. By Charles Harmon Thomas, M.D.—Reprint from the *Ophthalmic Review*, Vol. XI, No. 131.

LAMINECTOMY for Pott's Paraplegia. By Samuel Lloyd, M.D.—Reprint from *Annals of Surgery*, October, 1892.

ADENOID GROWTHS of the Naso-Pharynx and Their Treatment. By A. W. De Roaldes, M.D.—Reprint from the *New Orleans Medical and Surgical Journal*, August, 1892.

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